

MEMORANDUM.

I.—MEMORANDUM ON SCIENCE and ART DEPARTMENT
prepared by directions of the Lord President of
the Council.

1. The present constitution of the Science and Art Department together with its consolidation with the Educational Establishment under the orders of the Lord President of the Council was created by an order of the Queen in Council, dated 25 February 1856 (*see Appendix A.*), but some of the functions assigned to this department by this order have not been carried into effect.

2. The Science and Art Department may be said to have taken its origin in 1852 from the Schools of Design established in 1837 under the Board of Trade. Seventeen of these schools were founded in Manchester, Birmingham, Glasgow, and other centres of industry; they were governed on the principle of a partnership between the Government, represented by committees and by local committees generally consisting of large numbers, which two sets of committees divided certain responsibilities between them. In 1852 the schools were all in debt and difficulties, and had been in a chronic state of disputation, frequently investigated by commissions and committees.

3. In 1852 these schools were placed under a different management which insured undivided responsibility. They were constituted into the Department of Practical Art. The defects of the schools were set forth in a paper submitted to the President of the Board of Trade (Mr. Henley). New principles were adopted and carried out under his directions. (*See Appendix B.*)

4. The improvements effected in the Schools of Design induced the Government of Lord Aberdeen to enlarge the Department of Practical Art into the Department of *Science and Art* in 1854.

5. Between 1852 and 1858 the seventeen Schools of Design had grown into fifty-six Schools of Art, and the number of persons taught drawing, &c. had increased from 4,800 to 35,000, but little progress had been made with *Science* until a system in that year had been matured under the Lord Presidency of the Marquess of Salisbury.

SCIENCE.

6. At the last May examinations there were 212 Science schools, with 560 classes, teaching 10,230 student where the following sciences bearing on productive industry were being taught:—

Subjects.	Number of Students in 1867.
Practical, Plane, and Solid Geometry -	1,749
Mechanical and Machine Drawing -	1,409
Building Construction and Naval Archi- tecture - - -	862
Elementary Mathematics - - -	1,436
Higher Mathematics - - -	41
Theoretical Mechanics - - -	433
Applied Mechanics - - -	165
Acoustics, Light, and Heat - - -	1,443
Magnetism and Electricity - - -	1,434
Inorganic Chemistry - - -	2,380
Organic Chemistry - - -	638
Geology - - -	303

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Subjects.	Number of Students in 1867
Mineralogy - - - -	82
Animal Physiology - - - -	1,196
Zoology - - - -	591
Vegetable Physiology and Economic Botany - - - -	257
Systematic Botany - - - -	195
Mining - - - -	24
Metallurgy - - - -	117
Navigation - - - -	672
Nautical Astronomy - - - -	610
Steam - - - -	166
Physical Geography - - - -	1,349

7. The places where such schools and classes are established is given in the Appendix (C.).

8. There is at present no training school for teaching the Sciences above mentioned. Every person wishing to be recognized as a teacher is free to offer himself for examination once a year; and, if he passes, he is certificated as eligible to receive *payments on results*. Following certain simple rules, a school or class may be established in any place and in any premises. The local committees and masters make their own arrangements for the master's remuneration and the amount of fees to be paid by the students. Students of all grades of society attend and are eligible to take prizes; but it is only upon the successful students who rank as artizans that payments are made by the State. The most important regulations are given in the Appendix (D.). Under this system the science schools and classes have increased from nine in 1860 to 212 in 1867, at the present time, and are still increasing rapidly. The annual cost to the State of science teaching is now about 8,600*l.* per annum exclusive of the cost of administration. It is likely to be increased considerably as the system extends.

ART.

9. There is a highly efficient Training School for Art Teachers at South Kensington, at which also a small number (17) of the most talented local students finish their Art education. They become designers or Art workmen throughout the country. They are supported by the State, and receive from 1*l.* to 2*l.* per week.

10. In 1866 there were 102 Schools of Art, having 18,139 students. Thirty-two night classes, with 1,140 students,—a more humble sort of School of Art than the first named,—and 80,084 children, learn drawing in National and other schools for the labouring poor. Prizes of different grades are given to all classes of students, and the teachers are wholly paid on results. It has not hitherto been found possible to concert between the Education Establishment and the Science and Art Department an analogous system for giving scientific instruction in poor schools. The general rules of the system are stated in the Appendix. (E.)

11. The annual cost to the State of the Art teaching is now about 29,000*l.*, exclusive of the cost of the South Kensington Museum, from which all Schools of Art have the privilege of borrowing objects and books for study.

SCIENCE AND ART MUSEUMS.

12. When the Science and Art Department was established in 1854 there existed the nucleus of an Art collection formed partly by works belonging to the Schools of Design and partly by purchases from the Exhibition of 1851. They were exhibited to the public, by permission of the Queen, in Marlborough House, and afterwards transferred to the Iron Museum erected at South Kensington through the intervention of the Prince Consort. This Museum was built partly by Parliamentary vote and partly by funds given by the Commissioners of the Exhibition of 1851. In 1854 several public institutions connected with Science and Art were also affiliated to the Department. They were—

- a. The *School of Mines and Geological Survey*, transferred from the Office of Works; the Geological Survey having been formerly under the War Department as a branch of the Topographical Department.
- b. The *Royal Dublin Society*.
- c. The *Museum of Irish Industry*.
- d. The *Registration of Designs*; — made again subject to Board of Trade when the Education Department was formed.

13. Since 1854 the principle of consolidating Science and Art institutions under the sole personal responsibility of a Minister of the Crown has from time to time been extended, until at the present time there are no fewer than 10 separate public institutions in London, Dublin, and Edinburgh under the authority of the Lord President of the Council. Great public advantages and economy have resulted from this consolidation.

14. These several institutions are the under mentioned, taking them in the order in which they are specified in the parliamentary estimates :—

- A. The *South Kensington Museum* for the custody and exhibition of objects of education and of Science and Art, directly bearing on Productive Industry. A list of its divisions is given in the Appendix (F.). Subject to the direction of the Museum is the Art Training School and the School of Naval Architecture.
- B. The establishment of a branch *Museum at Bethnal Green* for exhibiting the *Food and Animal Products Collections* (the latter being analogous to the Geological and Mineralogical Collections in Jermyn Street and the Vegetable Collection at Kew), was sanctioned last year by Parliament and a vote taken on account.
- C. The *School of Mines* at Jermyn Street under the direction of Sir Roderick Murchison.
- D. The *Geological Surveys* of England (at Jermyn Street), of Scotland (at Edinburgh), and of Ireland (at Dublin), also under the direction of Sir R. Murchison.
- E. The *College of Chemistry* at Oxford Street, at present directed by Professor Frankland as *locum tenens* for Professor Hoffman.
- F. The *Edinburgh Museum of Science and Art*: Director, Professor Archer: somewhat analogous to the South Kensington Museum, but

rather more developed in Science than Art applied to productive industry. The Natural History Museum of the University of Edinburgh is a branch of it.*

- G. The *Royal Dublin Society* may be considered to have at last assumed the functions of a Museum of Science and Art as distinguished from a school, and a clear line of demarcation has been established between the Royal Dublin Society and the College of Science at Dublin. Connected with the Royal Dublin Society are the fine and popular Botanic Gardens at Glasnevin. All these institutions are now wholly supported by public funds.
- H. The *Royal Zoological Society* of Ireland, partly supported by subscriptions and partly by public funds.
- I. The *College of Science* at St. Stephen's Green. This institution, wholly supported by public funds, has been lately organized on the principles recommended by a Commission over which the late Earl of Rosse presided. Its general scope is to impart instruction in the principles of those sciences which bear on productive industry. The details of its plan are given in the Appendix. (See Appendix E.)
- J. The *Royal Hibernian Academy*. This institution was founded to do the same work in Dublin as the Royal Academy does in London. It is endowed with a house, and receives a Parliamentary grant of 300*l.*; but as the Irish artists generally† prefer to come to London to practise their profession, it is but feebly supported by the locality, and is in a chronic state of difficulty. All the Art training which Dublin seems to want is obtained at the School of Art at the Royal Dublin Society.‡

15. The amount of the Parliamentary vote for the support of all the above-mentioned institutions for the year 1867-68 was 206,386*l.*, which sum includes 32,500*l.* for new buildings at the South Kensington Museum, and 5,000*l.* on account for erecting the Museum at Bethnal Green. The general items of this vote are given in the Appendix (see Appendix G). The schools of Science and Art through England, Ireland, and Scotland, each country being free to establish as many as it pleases, cost 41,250*l.* The South Kensington Museum, acting as a centre for distribution and loans of works of Science and Art to the three kingdoms, 55,475*l.*, exclusive of new buildings. The local institutions of England and Scotland cost 37,510*l.*, and those for Ireland cost 26,333*l.* The staff employed is detailed in the Appendix (see Appendix (H)).

HENRY COLE.

4 Dec. 1867.

* The Botanic Gardens at Edinburgh are under the Office of Works, and the School of Art at Edinburgh is in the building of the Board of Manufactures there. The National Gallery of Scotland is in the same building. They are not under the authority of the Lord President.

† e.g., Messrs. Maclise, R.A., Foley, R.A., MacDowell, R.A., &c.

‡ The Royal Irish Academy and the National Gallery of Ireland are subject to no special Parliamentary responsibility.

APPENDIX A.

ORDER in COUNCIL for placing the DEPARTMENT of SCIENCE and ART under the EDUCATION DEPARTMENT, and for other purposes.—Presented to both Houses of Parliament by Command of Her Majesty.

Order in
Council, 1856.

Order of Her Majesty in Council of the 25th of February 1856, approving a Report of the Lords of the Council, recommending that the Department of Science and Art, now under the direction of the Board of Trade, be placed under the direction of the Education Department; that certain duties be assigned to the Education Department in connexion with Endowed Charity Schools and the Naval and Military Schools under the Admiralty and the War Department; and that the Board of Trade supervise the professional instruction in Navigation Schools connected with the Department of Science and Art.

Council Office, 5th March 1856.

AT THE COURT AT BUCKINGHAM PALACE, the 25th day of February 1856.

PRESENT:

THE QUEEN'S MOST EXCELLENT MAJESTY IN COUNCIL.

WHEREAS there was this day read at the Board a report of the Lords of Her Majesty's Most Honourable Privy Council, dated the first day of February, instant, in the words following, viz:—

"The Lords of Your Majesty's Most Honourable Privy Council beg leave humbly to recommend to Your Majesty that the education establishments now attached to different departments be united under one direction and be represented in both Houses of Parliament; and for this purpose their Lordships beg leave humbly to recommend to Your Majesty,—

"1. That, for the future, the establishment to be called the Education Department be placed under the Lord President of the Council, assisted by a member of the Privy Council, who shall be the Vice-President of the Committee of the said Privy Council on Education, and shall act under the direction of the Lord President, and shall act for him in his absence.

"2. That the Education Department include the following establishments viz:—

"a. The Education Establishment of the Privy Council Office.

"b. The Establishment for the encouragement of Science and Art, now under the direction of the Board of Trade, and called the Department of Science and Art.

"That until Your Majesty's pleasure be further signified the said Establishments continue to conduct their several duties according to existing regulations, but that both Establishments be under the orders of the Lord President.

"Their Lordships beg leave humbly to recommend that, in addition to the duties now discharged by the Education Establishment of the Privy Council Office and by the Department of Science and Art, the Education Department for the future be charged with the following duties, viz:—

"a. To report on such questions concerning education as may be referred to the Department by the Charity Commissioners for England and Wales.

"b. To inspect the Greenwich Hospital Schools, the Royal Dockyard Schools, and the Schools of the Royal Marines; and to report thereon to the Lords Commissioners of the Admiralty.

"c. To inspect the Regimental Schools in the United Kingdom, and the Establishment for training Regimental Schoolmasters at Chelsea; and to report thereon to the Secretary of State for the War Department.

"Their Lordships further beg leave humbly to recommend that the Board of Trade be charged with the duty of examining from time to time into the instruction in nautical science given in the Navigation Schools connected with the Department of Science and Art; and that as respects examinations in nautical science and the course of professional instruction pursued in the said schools, the Education Department refer for advice and assistance to the Board of Trade."

Her Majesty having taken the said report into consideration was pleased, by and with the advice of Her Privy Council, to approve thereof and of the recommendations therein contained. And Her Majesty was further pleased to order that the Lord President do cause the necessary steps to be taken herein accordingly; and that his Lordship do report thereon to Her Majesty for such further orders as may be requisite.

(Signed) WM. L. BATHURST.

APPENDIX B.

DEPARTMENT OF PRACTICAL ART.

At the Council Chamber, Whitehall, the 31st of March 1852, by the Right Honourable the Lords of the Committee of Council appointed for the consideration of all matters relating to Trade and Foreign Plantations: present, the Right Honourable J. W. HENLEY, M.P., the Right Honourable Lord COLCHESTER;

Creation of
Department of
Practical Art,
1852.

Read a letter from the Superintendents of the Department of Practical Art.

My Lords are pleased to express a general agreement in the views developed in this letter, and consider that it will be desirable that the

Creation of same should be communicated to the Managing Committees of the Department of Local Branch Schools for their information.
 Practical Art, 1852. (Signed) J. W. HENLEY.
 COLCHESTER.

LETTER to the Right Hon. J. W. HENLEY, President of the Lords of the Committee of Council for Trade, &c.

Board of Trade, Whitehall, 10 March 1852.

Sir,

1. In entering upon the duties of this new department, we venture to submit that a leading principle of its future management should be the endeavour to make the department as far as practicable self-supporting in all its branches. We apprehend it will be found that, on the one hand, as the department responds to the wants of the public, so, on the other, the public, as individuals, will be ready to pay to a considerable extent for the educational advantages which it offers. We think it is apparent that in the most successful educational institution in this country, the public use them and pay for the use of them according to their sense of their value, and thus render extraneous aid in a great measure unnecessary.

2. The Minute of the Board of Trade of 16th February points to three principal objects as constituting the business of the new department:

- I. The promotion of elementary instruction in Drawing and Modelling.
- II. Special instruction in the knowledge and practice of Ornamental Art.
- III. The practical application of such knowledge to the Improvement of Manufactures.

I. Elementary Instruction in Drawing and Modelling.

3. Past experience has proved that without sound elementary instruction in drawing, which is the education of the eye and hand, all satisfactory progress in ornamental art is difficult, if not impracticable; and in all schools connected with this department it has been found necessary to establish a large class for elementary instruction.

4. But a certain amount of such elementary training may usefully be given without necessarily creating a separate institution for the purpose. Drawing is in fact an indispensable branch of good general education; another language for the accurate expression of ideas, and may be beneficially connected with it. Hence it should be the aim to give systematic and practical effect to the views which have been frequently expressed by the Board of Trade upon the desirableness of extending elementary instruction in the knowledge of form to mechanics' institutes, to schools in connexion with the Committee of the Privy Council for Education, and other educational institutions for various classes of the community.

5. It is not to be expected that by thus encouraging a general power of drawing or otherwise representing form, every one is to be made a professional artist or ornamental designer, any more than that teaching reading and writing is to make every one an author, or instruction in arithmetic every one an astronomer; but it may safely be said that every artisan will be a better master of his craft, and every purchaser will be not only a better judge of the beauty and excellence of the articles he uses, but be better able to enjoy them, by possessing the power of seeing and representing form correctly, than would be the case without it.

6. We think that the qualification for admission to the present schools of Ornamental Art should be the possession at least of some power of drawing correctly; and that the pupils should be subjected to examination before admission. The successful establishment of elementary schools is the only sure basis in founding future schools of design, or higher schools of ornamental art.

7. We believe that the extension of elementary schools for instruction in drawing may become a very important branch of this new department; they will promote the practical improvement of ornamental art applied to manufactures, and in the most important degree tend to enable the general public to appreciate such improvements when attained. For it must be obvious that unless the public, as consumers, are sufficiently educated to appreciate improved art in manufactures, it will not be the interest of manufacturers to aim at its production; and that the labours of this department must be in some measure fruitless.

8. In promoting the extension of elementary instruction in drawing, we apprehend that the expenses to be incurred for each school or mechanics' institute will not be heavy; probably an average expense of 20*l.* for examples, models, &c. per institution would be sufficient, at least in the beginning. The aid to be given will be less by any direct pecuniary assistance than by the recommendation of qualified masters, the encouragement of normal classes of teachers, by admitting them to study in existing schools of design free of cost; the temporary loan of examples and models, and communication with the managing authorities, in order to invite their attention to the general advantages resulting from the acquirement of a power of drawing.

II. Higher Instruction in Ornamental Art.

9. Instruction in ornamental art for the improvement of manufactures may be considered to be the especial business of the metropolitan and local branches of the School of Design, as at present organized. The

accompanying table shows the financial position, the number of students and general state of the schools in June 1851. The attendance of the students affords the best evidence of the use which the public make of the schools, and of the estimation in which they are held in their respective localities. The results of the attendance, as indicated by the amount of the fees received, are very different in different places; thus, each student at York contributes annually an average of 1*l.* 4*s.*, whilst the Government contributes 2*l.* 5*s.* 5*d.*; at Newcastle-upon-Tyne the student contributes 1*l.* 3*s.*, and the Government 1*l.* 13*s.* 8*d.* In both places the Government grant is only 150*l.* per annum. At Paisley, where the Government grant is 400*l.* per annum, the average annual payment of each of the 64 students is 19*s.* 11*d.*, whilst the Government contributes 6*l.* 5*s.*, and each student costs the school upwards of 8*l.* 3*s.* 11*d.* The average period of attendance would be shown by the average rate of contribution, if there were no disturbing elements. At Birmingham the students, costing 2*l.* 6*s.* 11*d.* each, appear to contribute only 4*s.* 9*d.* each, because a considerable number attend by virtue of a free presentation; at Coventry the student costs 2*l.* 2*s.* 7*d.*, and appears to have contributed only 2*s.* 4*d.*, because numbers attend from the free schools without paying individually; at Spitalfields the student costs nearly 2*l.* 16*s.* 6*d.*, and contributes nearly 8*s.* 2*d.*

It must be remarked that in 14 out of 17 provincial schools, the local subscriptions do not equal the amount of the Government grant, although it was upon this condition that the local schools have been founded. In nine schools even the local contributions and the fees together do not equal the Government grant. Taking all the provincial schools, the Government contributes 6,850*l.*, exclusive of cost of lectures, examples, and management; whilst the localities subscribe only 3,447*l.*, and even including the fees, contribute only 5,431*l.* At Newcastle, Norwich and York, where the pecuniary aid from the Government is on the lowest scale, the contributions from these localities are proportionably the highest. The total cost of the art-education per student varies from 2*l.* 2*s.* 7*d.* a-year in Coventry, to 10*l.* 11*s.* 2*d.* in Leeds. The average cost in the provincial schools is 4*l.* 6*s.* 5*d.*, and in the metropolitan school 8*l.* 12*s.*; a cost considerably higher than each student pays in most private establishments for instruction in several kinds of drawing.

These results, now for the first time, we believe, brought together, present features so various, that a close examination into the state of each school at a future time appears to be necessary, not only to reconcile them with any system of management, but to deduce those facts which may be useful in enabling other localities to establish schools upon a satisfactory basis.

10. The present facts seem to lead, however, to the general inference that the success of a school is more dependent upon the ability of the management than on the amount of the Government grant, or the total cost of the school to the locality. The schools in the country, like other provincial institutions, could probably be conducted much better by local authorities than by any central system; and the management of them for the future should be placed as much as possible under the control of the localities themselves, who would soon find it their interest voluntarily to seek connexion with the central authority, for the appointment of masters, selection of examples, advice in management, lectures, and for the higher instruction which the peculiar circumstances of the metropolis enable it to supply.

11. While, however, the present system exists, of chiefly supporting the local branch schools by grants from the general taxation, it is obviously necessary that they should be required to give proofs of their proper application of such grants. The best evidence of this would be furnished by the number of students, the character of their productions, and generally in the training evidenced by the pupils. The managers of the local schools should be invited to exert themselves in extending the influence of the school, especially by connecting elementary schools with it, and so long as they participated in the Government grant, it would be necessary that they should send up annually to London, not only a certain number of works executed by the students in the school, but one or more of their most advanced students, to prosecute their studies further in the department of Practical Art, and thus give them the advantages of studying the collections of manufactures in London, attending lectures, &c. In addition to this, it would be desirable to offer to the committees of the local schools the privilege of naming a limited number of exhibitors from each school, who should attend the lectures and demonstrations at the department of Practical Art, without any payment at all, or at very reduced fees. The enjoyment of this privilege might be offered as a prize among the students.

12. It is not proposed to reduce the Parliamentary grants to any of the local schools in the next year; but, on the contrary, to include in the estimate grants to four additional branch schools already sanctioned, so that the whole estimate in respect of the local schools will be increased.

13. But we submit for your consideration, that the number of schools of design, or branch schools for ornamental art, supported by the system upon which the Government grants have hitherto been made, has reached its extreme limits. When additional schools for instruction in ornamental art are required, we think they should be the result of local efforts, and of a local sense of their value, and depend much less than heretofore on the general taxation for pecuniary assistance. We think

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Creation of it desirable that before any attempt is made to found a higher ornamental school in any locality, it should first prove that it has been able to establish successfully an elementary school. This department, when requested, should readily undertake to recommend masters and lecturers, to lend examples of ornamental art and manufactures, and it should encourage all local institutions to participate in every advantage which the department may possess, and promote in every way a mutual friendly feeling and confidence.

1852.

14. In order to assist the establishment of additional schools on a principle of self-reliance, and to increase the interest of the localities in the existing schools, we think it right to notice a suggestion frequently made, that the Legislature should give a power of levying a moderate local rate for the support of schools of ornamental art until they became self-supporting. We are of opinion that a dependence on local, rather than general taxation, is calculated to awaken the greatest amount of local interest and attention to the subject; and we think that a higher and more practical development would be given to such schools, by enabling them to connect themselves with the museums of art, which by the existing law may be supported by local rates.

15. We are the more induced to call attention to this point, because evidence was given before the last Select Committee of the House of Commons on Schools of Design, by Sir Stafford Northcote, Mr. Solly, chairman of the Sheffield School, and others, to the effect that not only a power to levy rates was expedient, but that some town councils already desired to possess it.

16. At different times, it has been objected that students of a higher class in society than artisans and designers have attended these schools, and that the attention of masters is given to private classes; but this objection appears to be dying away. Private classes, or classes consisting of students, probably not artisans or designers, are noticed by Mr. Poynter, the late inspector of the schools of design, in his last reports as existing at Leeds;—at Manchester, where the admission of artists is stated to be “calculated to extend the influence of the school, and to identifying it with the arts in general in the public estimation;—at Newcastle;—at Norwich, “the grammar-school class;”—at Nottingham;—at Sheffield, “private classes beneficial to the school by increasing the number of its supporters;”—at Glasgow, “a life class principally attended by artists,” which “tends to raise the importance of the schools;”—at Dublin, “where there is a considerable attendance of female students qualifying themselves as governesses with the purpose of going to America;”—at Belfast;—and at Cork, where there is a small private male class, three students being from Queen’s College. These facts prove a desire on the part of the community generally to participate in the advantages of the schools, and we think this desire ought to be encouraged, although their scope may thereby become extended beyond the original intention. It must be most difficult in practice to draw a line as to the station of the students, and to exclude any who desire to attend; and we submit that it would be better to consider all classes as integral parts of the school, and under the direction of the local committees, rather than some of them as the mere private arrangements of the masters. Different scales of fees might be fixed, and the public left free to make its own choice of the hours of attendance. The fees should be carried to the general account of the school, and the master be permitted to share proportionably in them. For it must not be forgotten that the schools are supported by the general taxation: and on public grounds, it is desirable that every one, whether a manufacturer, tradesman, or artisan, should be made acquainted with the principles of ornamental art. This knowledge, it is the declared purpose of the schools to give; and so long as the teaching of ornamental art applied to manufactures and decoration is steadily born in mind, and thoroughly carried into practice, no other distinction as to classes to be taught appears to be necessary than to give every possible encouragement to the workman to perfect himself in the art applicable to his labours, and place the cost of the instruction within his means.

III. *Practical Improvement of Manufactures.*

17. It is to the development of the third or highest division of the new department that the most careful attention will have to be turned. This consists of the practical application of the artistic powers which the pupil already has acquired to the exigencies of manufacture; to use the words of a report of the School of Design in 1842, often repeated afterwards, in “the study of the various processes of manufacture, and the “practice of design for individual branches of industry,” and in “the “practice of the various branches of decorative art.” We submit that the first step to be taken to accomplish this is to place before the student fine examples of what has already been accomplished in the specialty in which he seeks to be proficient. An educated designer for ceramic manufacture should at least have an adequate knowledge of what Japan, Meissen, Sèvres, and even Chelsea, have already done, and he should aim to acquire a power of execution as high as that which his predecessors have possessed. He should be instructed also in the principles which guided them to excellence, and taught to avoid the faults which marred the perfection of their labours. In like manner the properly-educated designer for printed and woven fabrics ought to be practically familiar with the early chintzes of India, as well as with the best specimens of work now produced at Paris, Mulhausen, Crayford, or Accrington.

18. Classes of students should be formed for the actual practice and study of the specialties of manufacture, and for acquiring a knowledge of the general principles by which the ornamental design for such manufactures must be regulated. Every student under a certain age should be required, before he enters any one of these classes, to produce specimens of his proficiency in ornamental drawing and colouring, or in modelling, when the manufacture calls for that specialty. But this rule might be modified in the case of designers beyond a certain age, who cannot be expected to pass through the same course of elementary study as youths, but who would still derive great benefit from the study of fine examples, and from hearing expositions of those principles which have contributed to their excellence.

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19. In organizing these classes, deference should be paid to the practical experience of manufacturers, and pains taken to induce them to contribute their indispensable practical knowledge to aid the development of this branch of the institution. A hearty endeavour to seek the co-operation of manufacturers would be as successful in the formation and working of these classes, as it was in the arrangement of the late Exhibition. Some difficulties must be expected, at least at the outset, in finding competent artists who will be willing, at the present time, to acquire such practical and special knowledge as was possessed by Albert Durer and Cellini in metal-work, by Raphael in tapestries and decoration, and by Holbein in jeweller's work, &c. But as the most eminent artists of the world, at one period, are known to have possessed extensive knowledge of the specialties involved in producing ornamental art, it may be expected that others will acquire this power, if it be found that the age really requires them to do so.

20. It appears to us indispensable that practical demonstrations with lectures should be given in these classes; and by adopting the system of insuring to the professors a moderate payment, coupled with a participation in the fees paid by the students, a system which has proved so successful in the Scotch Universities, in the Queen's Colleges in Ireland, and very recently in the Museum of Practical Geology, not only an adequate remuneration will be provided for the professors, but the classes will become in some measure self-supporting. If this system should be found to succeed, it may be extended to the other divisions of the department, and thus give the masters a share in the increased prosperity of the schools.

21. The students should be examined, and receive certificates of competency after they have passed through these classes and afforded proofs of their ability.

22. As soon as proper accommodation can be found, a beginning should be made in the metropolis; but there will be no reason why the system should be limited to the metropolis, but, on the contrary, it may be extended to the larger branch schools, particularly in reference to the special manufactures of their localities. In the first instance, however, during the experiment in London, the provincial schools should be encouraged to avail themselves of it, by sending some of their best students to study in London, and thus gain experience which may be useful in their own localities.

23. The purchases of Indian and other ornamental works from the late Exhibition will be of the greatest value in developing the higher kind of instruction thus indicated, both in London and the country. After these examples shall have been exhibited in London, and their excellence and usefulness pointed out, it may be desirable that they should be sent round to the principal country schools, and similar measures taken to demonstrate their educational value, if such a course should be found to be practicable.

24. In this, as in the elementary division of the department, it may be expected that the general public will derive considerable benefit. Whilst the student is acquiring skill by practice, both the producer and the consumer will have increased means of judging of the success of the student's efforts; and after a time it may be expected that all classes will become as willing to receive instruction in art, as they are in history, chemistry, or geology.

25. We do not hesitate to say that the successful development of the new department must necessarily be slow, and that it will be some time before its full action can be fairly judged. We cannot hope to escape from mistakes; but we trust that vigilance, firmness, prudence, and conciliation, will reduce the number of them, and insure a fair trial in this new attempt to afford practical art instruction.

We have, &c.

(Signed) HENRY COLE.
RICHARD REDGRAVE.

APPENDIX C.

Science
Schools in
1867.

LIST of SCIENCE SCHOOLS, giving the NUMBER of STUDENTS returned
as under INSTRUCTION in MAY 1867.

Schools established since May 1866 are in Italics.

Town.	Where held.	Number of Individuals under Instruction, 1867.
ENGLAND.		
Abingdon -	British Schoolroom -	30
Accrington -	Mechanics' Institution -	21
Alderley Edge -	Day Schoolroom -	14
Almondbury -	King James' Grammar School -	28
Andover -	Mechanics' Institution -	45
Ardwick -	Wesleyan School -	10
Ashby-de-la-Zouch -	Mutual Improvement Society's Rooms.	37
Ashton-under-Lyne -	Mechanics' Institution -	20
Bacup -	Mechanics' Institution -	51
Banbury -	British School -	36
" -	Science School -	30
" -	Laboratory -	10
Barnsley -	St. John's School -	17
Birmingham -	Midland Institute -	135
Birmingham -	St. Barnabas' National School -	61
" -	Metropolitan Railway Works, Saltley.	55
" -	Clarendon Chambers -	
" -	Wesleyan Schools -	
" -	St. Matthew's Schools, Duddleston	
" -	School of Art -	55
Blackburn -	Wesleyan School -	13
" -	Mechanics' Institution -	16
Blandford -	Working Men's Club -	22
Bodmin -	Literary Institution -	47
Bolton -	Bridge Street School -	60
" -	Independent Methodists' School -	13
" -	Science and Art School -	168
" -	Mechanics' Institute -	79
Breage -	Cornwall -	12
Bristol -	Trade School -	145
Bromsgrove -	Literary and Mechanics' Insti- tute.	48
Burnley -	Church of England Literary In- stitute.	55
" -	Carlton Road School -	69
" -	Westgate School -	12
" -	Mechanics' Institution -	48
" -	Grammar School -	50
Bury -	Athenæum -	72
Camborne -	British School -	31
Cardiff -	Free Library -	42
Cheltenham -	Bedford Buildings -	146
Chester -	Mechanics' Institution -	25
Chorley -	National School -	20

List of Science Schools and Classes, &c.—continued.

Science
Schools in
1867.

Town.	Where held,	Number of Individuals under Instruction, 1867.
Clitheroe -	Mechanics' Institution -	12
Congleton -	Wesleyan Schoolroom -	21
Cottesmore -	National Schoolroom -	22
Crewe -	Mechanics' Institution -	15
Croydon -	Literary Institution -	23
Darlington -	Science Class -	12
Darwen -	Mechanics' Institute -	29
Deptford -	St. John's School -	18
" -	St. Paul's School -	40
Denton -	Mechanics' Institution -	10
Derby -	The Grammar School -	10
Droylsden -	Educational Institution -	37
Eastington -	National School -	11
Eastington -	Wesleyan Day School -	16
Eastwood -	Mechanics' Institute -	20
Elland -	Mechanics' Institute -	20
Exeter -	Literary Society -	37
Falmouth -	National School -	14
Glossop -	Littlemore and Howard Town Mechanics' Institution.	19
Gloucester -	Blue-coat School -	46
Grantham -	Science Class -	24
Greenwich -	Literary Institution -	50
Guisborough -	Mechanics' Institution -	7
Halifax -	Working Men's College -	17
Haslingden -	The Institute -	19
Heywood -	Mechanics' Institution -	32
Huddersfield -	Mechanics' Institution -	16
Hull -	Nautical Schools -	73
Hulme -	Working Men's Institute -	46
Huntingdon -	Walden's School -	20
Hyde -	Mechanics' Institute -	60
Kettering -	National School -	21
Kingsbridge -	Science Class -	12
Kinver -	National Schoolroom -	34
Lancaster -	Mechanics' Institution -	53
Leeds -	Mechanics' Institution -	39
Leicester -	St. Martin's School -	49
" -	St. Margaret's School -	5
Lincoln -	Grammar School -	21
" -	Training College -	44
" -	Mechanics' Institution -	22
Liverpool -	Free Library -	68
Liverpool -	Liverpool Institute -	90
Llanelly -	Copper Works School -	49
London :—		
Bath Street -	City Middle-class School -	24
Battersea -	Sir Walter St. John's School -	63
Bethnal Green -	Birkbeck Schools -	130
" -	National School -	52
Chelsea -	St. Mark's Practising School -	124
Great Ormond Street -	Working Men's College -	18
Islington -	Lower Islington Public School -	109
Kingsland -	Kingsland and Dalston Institute -	36

Science
Schools in
1867.

List of Science Schools and Classes, &c.—*continued.*

Town.	Where held.	No. of Individuals under Instruction, 1867.
London— <i>cont.</i>		
Lambeth -	Boy's Schoolroom, Lambeth Green -	39
Leadenhall Street -	City of London College -	34
Polytechnic -	Royal Polytechnic Institution -	47
Chancery Lane -	London Mechanics Institution -	10
Dock Street -	Sailors' Home -	256
Peckham -	Upper and Middle Schools -	348
Macclesfield -	Modern Free School -	36
Manchester -	Oldham Road National School -	12
Manchester -	Roby Educational Society's Rooms.	31
" -	Mechanics' Institution -	239
" -	Corporation Street -	36
" -	Church of England Institute -	6
Middlesborough -	Mechanics' Institution -	8
Middlesborough -	National School -	22
Middleton -	Lomeshaye Mills -	27
Nelson-in-Marsden -	Athenæum and Mechanics' In- stitution.	16
Newport (Mon.) -	Church Street -	10
Newton Heath -	Mechanics' Institution -	12
Newton Heath -	Church Institute -	7
North Ormesby -	Mechanics' Institution -	35
Nottingham -	Glodwick Mutual Improvement Society's Rooms.	30
Oldham -	Science and Art School -	100
" -	Parish Church School -	19
" -	Analytical Society -	14
" -	National School -	18
Padiham -	Free School -	10
Painswick -	Mechanics' Institution -	17
Pendleton -	Pendleton Club -	35
Pendleton -	Burrough Road School -	62
Plumstead -	28, Buckwell Street -	18
Plymouth -	Science School -	154
Plymouth -	Navigation School -	—
" -	Science School -	17
Pontypridd -	The Grove School -	15
Portland -	School of Science -	37
Preston -	Science Class -	28
Purleigh -	National School -	23
Rhodes -	St. Thomas's School -	19
St. Helen's -	The Institution -	25
St. Just -	Working Men's College -	44
Salford -	St. John's Hall -	20
Salford -	Mechanics' Institution -	62
Slough -	Wesleyan School -	19
Stillington -	Mechanics' Institution -	39
Stockport -	The Institution -	10
Stonehouse -	Stroud Institute -	63
Stroud -	Wesleyan Day School -	12
Tebworth -	School of Science and Art -	36
Torquay -	1, Spring Cottage -	18

List of Science Schools and Classes, &c.—*continued.*Science
Schools in
1867.

Town.	Where held.	Number of Individuals under Instruction, 1867.
Walsall - - -	Science School - - -	31
Wigan - - -	Mining and Mech. School - - -	23
Wolverhampton - - -	Athenæum Class - - -	12
Wolverton - - -	Science and Art Institution - - -	60
Woolwich - - -	Mechanics' Institution, Royal Arsenal - - -	60
" - - -	National School - - -	58
Woolwich - - -	St. Thomas' Parochial School - - -	65
Yarmouth, Great - - -	Navigation School - - -	112
York - - -	Popular Institution - - -	120

SCOTLAND.

Aberdeen - - -	Mechanics' Institution - - -	69
" - - -	Navigation School - - -	254
Corsock - - -	Girls' School - - -	26
Dundee - - -	High School - - -	57
Glasgow - - -	Secular School - - -	163
" - - -	Andersonian University - - -	827
Inverness - - -	Science Class - - -	20
Kilmarnock - - -	New Public School - - -	48
Leith - - -	Navigation School - - -	200

IRELAND.

Antrim - - -	Science Class - - -	43
Armagh - - -	Natural History Society's House - - -	21
Athlone - - -	St. Mary's Schools - - -	28
Bailieboro' - - -	Model National School - - -	86
Ballycarry - - -	Science Class - - -	7
Ballymena - - -	National School - - -	14
Ballymena - - -	Model School - - -	28
" - - -	National School - - -	18
Banbridge - - -	Scarva Street National School - - -	28
Belfast - - -	Eglinton Street National School - - -	13
Belfast - - -	Belfast Academy, Donegal Street - - -	80
Belfast - - -	Fisherwick Place National School - - -	28
Belfast - - -	Linen Hall Street - - -	47
Belfast - - -	Model School - - -	35
" - - -	Stanhope Street National School - - -	36
Belfast - - -	Great George Street - - -	63
Belfast - - -	Crumlin Road - - -	23
Belfast - - -	Old Lodge Road - - -	16
" - - -	Academy Street - - -	20
" - - -	Royal Academical Institute - - -	45
Belfast - - -	National Model School - - -	47
" - - -	Wolfhill Mill, Ligoniel - - -	27
Belfast - - -	Maritime Model School - - -	95
Belfast - - -	Christian Brothers' Schools - - -	18
Carlow - - -	Model School - - -	54
Carrickfergus - - -	Science Class - - -	27
Castleshane - - -	Maritime School - - -	25
Chfiden - - -	No. 1 National School - - -	—
Comber - - -	Smyth's National School - - -	86
Comber - - -		

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Science
Schools in
1867.

List of Science Schools and Classes, &c.—*continued*.

Town.	Where held.	No. of Individuals under Instruction, 1867.
<i>Cork</i> - - -	<i>District Model School</i> - -	46
<i>Drogheda</i> - - -	<i>St. Mary's National School</i> -	26
<i>Drogheda</i> - - -	<i>Whitworth Hall</i> - -	33
<i>Dublin</i> - - -	<i>Central Modern School</i> - -	97
" - - -	<i>Mechanics' Institution</i> - -	9
<i>Dundalk</i> - - -	<i>Free Library</i> - -	28
<i>Enniscorthy</i> - - -	<i>Model School</i> - -	29
<i>Enniskillen</i> - - -	<i>Science Class</i> - -	12
<i>Fintona</i> - - -	<i>National School</i> - -	10
<i>Galgorm</i> - - -	<i>National School</i> - -	31
<i>Galway</i> - - -	<i>Model School</i> - -	40
<i>Holywood</i> - - -	<i>Science School</i> - -	75
<i>Kilkenny</i> - - -	<i>District National Model School</i> -	59
<i>Larne</i> - - -	<i>North End National School</i> -	17
" - - -	<i>Model School</i> - -	24
<i>Loughinisland</i> - - -	<i>National School</i> - -	15
<i>Lurgan</i> - - -	<i>Model School</i> - -	58
<i>Newtownards</i> - - -	<i>Model School</i> - -	109
<i>Oldcastle</i> - - -	<i>Endowed School</i> - -	160
<i>Portadown</i> - - -	<i>National School</i> - -	18
<i>Raphoe</i> - - -	<i>National School</i> - -	9
<i>Santry</i> - - -	<i>National Society's Training School.</i>	60
<i>Trim</i> - - -	<i>District Model School</i> - -	72
<i>Waterford</i> - - -	<i>Model School</i> - -	28
		10,230

Schools of Art in 1865. LIST of SCHOOLS OF ART throughout the United Kingdom in connexion with the SCIENCE AND ART DEPARTMENT of the COMMITTEE OF COUNCIL ON EDUCATION, 1865.

Name of Place.	Established.	No. taught in Central Schools, 1865.	Total No. under Instruction, 1865.
<i>Aberdeen</i> - - -	1853	251	1,074
<i>Abingdon</i> - - -	1865	—	—
<i>Andover</i> - - -	1854	74	394
<i>Basingstoke</i> - - -	1854	—	—
<i>Bath</i> - - -	1854	163	2,340
<i>Birkenhead</i> - - -	1861	144	1,464
<i>Birmingham, with branch at Spon Lane.</i>	1842	1,009	1,764
<i>Bolton</i> - - -	1857	58	658
<i>Boston</i> - - -	1860	111	630
<i>Bradford</i> - - -	1865	—	—
<i>Bridgnorth</i> - - -	1858	—	—

List of Schools of Art—*continued.*Schools of Art
in 1855.

Name of Place.	Established.	No. taught in Central Schools, 1865.	Total No. under Instruction, 1865.
Bridgewater - - - -	1860	46	46
Bridport - - - -	1865	—	—
Brighton - - - -	1859	114	1,814
Bristol - - - -	1853	296	2,666
Bromsgrove - - - -	1860	86	262
Burnley - - - -	1858	85	424
Burslem - - - -	—	—	—
Cambridge, with branches at Ely, Huntingdon, and Royston.	1858	198	781
Carlisle - - - -	1854	112	362
Carmarthen and Swansea - -	1854	59	1,284
Carnarvon, with branches at Ban- gor and Portmadoc.	1853	147	1,228
Cheltenham - - - -	1853	115	2,495
Chester, with branches at Crewe and Wrexham.	1853	151	2,463
Chippenham - - - -	1865	—	—
Cirencester - - - -	1860	120	1,115
Clonmel - - - -	1854	43	281
Coalbrookdale and Wenlock, with branches at Madeley and Broseley.	1856	54	1,094
Cork - - - -	1850	177	349
Coventry - - - -	1844	191	838
Darlington - - - -	1857	140	540
Devizes - - - -	1864	36	66
Devouport and Plymouth - -	1859	214	3,604
Dublin - - - -	1849	484	2,969
Dudley - - - -	1853	47	330
Dundee - - - -	1856	445	1,922
Durham - - - -	1853	127	171
Edinburgh (Male) - - - -	1858	383	895
" (Female) - - - -	1858	198	1,148
Exeter - - - -	1853	249	1,201
Frome - - - -	1865	—	—
Glasgow - - - -	1845	771	2,036
Gloucester - - - -	1859	134	454
Greenock - - - -	1857	122	682
Guildford - - - -	1858	—	—
Halifax - - - -	1859	145	1,162
Hanley - - - -	1847	169	509
Henley-on-Thames - - - -	1864	41	177
Hull - - - -	1861	204	719
Inverness - - - -	1865	—	—
Ipswich - - - -	1858	190	867
Kidderminster - - - -	1862	84	1,166
Lancaster - - - -	1856	187	1,007
Leeds, with branches at Hudders- field, Hunslet, and Keighley.	1847	590	7,299
Limerick - - - -	1852	113	268
Lincoln - - - -	1863	210	943
Liverpool, North District - -	1855	619	2,404
Liverpool, South District - -	1855	297	1,481
Llanelli - - - -	1854	52	985
Macclesfield - - - -	1851	93	809

Schools of Art
in 1865.List of Schools of Art—*continued*.

Name of Place.	Established.	No. taught in Central Schools, 1865.	Total No. under Instruction, 1865.
Manchester - - -	1842	385	2,834
Metropolitan Schools :—			
Female School of Art, Blooms- bury.	1842	123	123
Lambeth - - -	1854	372	4,819
St. Martin's - - -	1854	281	1,570
St. Thomas', Charterhouse -	1853	214	214
Spitalfields - - -	1842	183	183
West London - - -	1862	528	928
Westminster - - -	1861	117	1,641
Hampstead - - -	1856	63	63
Rotherhithe - - -	1854	27	27
* St. George's-in-the-East -	1858	45	45
South Kensington - - -	1854	839	1,392
Newcastle-under-Lyme - - -	1853	45	644
Newcastle-upon-Tyne - - -	1854	478	2,239
Norwich - - -	1846	189	3,297
Nottingham - - -	1843	—	—
Oxford - - -	1865	—	—
Paisley - - -	1848	113	1,063
Penzance - - -	1853	91	987
Perth - - -	1863	95	1,547
Preston - - -	1860	160	2,281
Reading - - -	1860	96	934
Salisbury - - -	1865	47	167
Sheffield - - -	1843	263	1,763
Shrewsbury - - -	1861	63	483
Southampton - - -	1855	184	1,220
Stirling - - -	1857	96	296
Stoke-upon-Trent - - -	1847	97	400
Stourbridge - - -	1852	140	914
Stroud - - -	1860	104	479
Taunton - - -	1856	111	1,179
Tavistock - - -	1865	88	173
Torquay - - -	1865	—	—
Trowbridge - - -	1864	41	451
Truro - - -	1853	66	372
Warminster - - -	1861	35	476
Warrington - - -	1853	131	1,616
Waterford - - -	1852	82	563
Weston-super-Mare - - -	1864	77	77
Wolverhampton - - -	1854	128	1,221
Wolverton - - -	1865	—	—
Worcester - - -	1851	213	1,374
Yarmouth, Great - - -	1857	55	1,185
York - - -	1842	143	843
Totals - - -		16,621	103,588†

* In connexion with the Training School at South Kensington.

† Exclusive of 39 students in training at South Kensington.

APPENDIX D.

EXTRACT from the DIRECTORY for SCIENCE SCHOOLS and CLASSES.

Science
Directory.

III. The head of the Education Department, of which the Science and Art Department is a branch, is the Lord President of the Council, assisted by a member of the Privy Council, who is called the Vice-President of the Committee on Education, and who acts under the direction of the Lord President, and for him in his absence. (Order in Council, 25th February 1856, Act 19 & 20 Vict. c. 116.)

IV. The object of the grant is to promote instruction in Science especially among the industrial classes,* by affording a limited and partial aid or stimulus towards the founding and maintenance of Science schools and classes.

VI. The following are the Sciences towards instruction in which aid is given :—

- Subject 1, Practical Plane and Descriptive Geometry.
 „ 2, Machine Construction and Drawing.
 „ 3, Building Construction or Naval Architecture and Drawing.
 „ 4, Elementary Mathematics.
 „ 5, Higher Mathematics.
 „ 6, Theoretical Mechanics.
 „ 7, Applied Mechanics.
 „ 8, Acoustics, Light, and Heat.
 „ 9, Magnetism and Electricity.
 „ 10, Inorganic Chemistry,
 „ 11, Organic Chemistry.
 „ 12, Geology.
 „ 13, Mineralogy.
 „ 14, Animal Physiology.
 „ 15, Zoology.
 „ 16, Vegetable Physiology and Economic Botany.
 „ 17, Systematic Botany.
 „ 18, Mining.
 „ 19, Metallurgy.
 „ 20, Navigation.
 „ 21, Nautical Astronomy.
 „ 22, Steam.
 „ 23, Physical Geography.

VII. The assistance granted by the Science and Art Department is in the form of—

1. Payments on results to teachers.
2. Grants towards the purchase of apparatus, &c.
3. Public examinations in which Queen's Medals and Queen's Prizes are awarded, held at all places complying with certain conditions. On the results of these examinations the payments are made to the teachers.

VIII. Persons are qualified to earn payments on results who have :—
 a. obtained certificates as teachers in any of the before-mentioned sciences at the examinations for teachers of the Science and Art Department held previous to January 1867, or,
 b. after the abolition of the above examinations—February 1867—obtained a First or Second Class at the examination† specified in § XI.

No payments are made to a teacher on account of instruction given in subjects in which he is not so qualified.

IX. Suitable premises, with firing, lighting, &c., must be found and maintained at the cost of the locality where the school or class is held. If at any time the funds do not cover these requisite local expenses, it must be inferred that there is no such demand as the Government is justified in aiding, for instruction in the locality; and the assistance of the Department will be withdrawn. School premises.

X. A Local Committee of not less than five well known responsible persons must be formed in connexion with every Science Class, who will carry out the instructions contained in the Appendix. Local committee.

XI. The Science and Art Department holds annually in May, through the agency of the Local Committees, a public examination of all Science schools and classes, whether taught by teachers qualified as above or not, in any place in the United Kingdom which complies with the requisite conditions. On the results of this examination the payments are made to qualified teachers. Application for it must be made before the end of March in each year, stating the number of persons and the subject or subjects in which they are to be examined. Examination of classes.

In addition to the above, examinations in Mathematics, Navigation, Nautical Astronomy, Steam, and Physical Geography are held for the benefit of seafaring men—and for them only—three times a year, in all.

* Direct payments are made to teachers only on behalf of adult artisans, or the children of artisans, or the children of persons who are not assessed to the income tax, that is, who do not possess an income of 100*l.* a year. (See § xviii.)

† Such examination may be dispensed with in cases where the candidate has taken a degree, at either of the Universities, or has obtained the Associateship of the Royal School of Mines, London, or Royal College of Science, Ireland. Full particulars must be furnished by the applicant, and his diploma sent for inspection.

Science Directory.	seaports where Local Committees are formed and are willing to undertake them. These examinations take place in the beginning of March, September, and December.
Examination of classes.	XII. A school or class taught by a teacher not qualified to earn payments as above, may, by applying to the Secretary of the Science and Art Department, be examined at the same time and in the same manner as the classes under qualified teachers: provided that a Local Committee be formed which complies with the requisite conditions. If the class be for artisans the pupils are eligible to receive Queen's Prizes and Queen's Medals under the same condition as the pupils of qualified teachers. Should it, however, be for the middle classes the pupils are not eligible for prizes and medals, but receive certificates of merit instead.
Examination of other students.	XIV. Any persons whatever, whether taught by the qualified teacher or not, may present themselves at the Local Committee's examination on registering their names in time for the Local Committee to comply with the instructions, and paying a registration fee of not more than 2s. 6d. each.
Classification of results.	XV. The successful candidates at the May examination and the quarterly examinations of seamen are classified under the heads of first, second, third, fourth, and fifth class. The standard of attainment required may be raised from year to year. For the fifth class it is only such as will justify the Examiner in reporting that the instruction has been sound, and that the students have benefitted by it. Those who have attained a higher degree of proficiency are classed as 4th, 3rd, 2nd, or 1st class, according to their merit.
Queen's prizes.	XVI. To the 1st, 2nd, and 3rd class are given Queen's prizes consisting of books or instruments chosen by the candidates from lists furnished for that purpose. These are unlimited in number, and are open to all candidates who come within either of the following categories. (1) Students in Science Classes under qualified Teachers; (2) Registered Students in Artisan Classes taught by any Teachers, or (3) bona fide Artisans. Other candidates, if successful, receive instead Cards of merit recording their success.
Queen's medals.	XVII. To the four best in each subject are awarded Queen's medals. These consist of one gold, one silver, and two bronze in each subject for competition throughout the United Kingdom. They are only awarded if there are a sufficient number of qualified candidates, and the gold medal will only be given in cases of high merit specially recommended by the Examiner. The same candidate cannot obtain the same medal in the same subject more than once. Only registered students of schools and classes under Local Committees (see § x. and xii.) are eligible for medals. They cannot be taken by middle-class students who are more than 17 years of age or by teachers who are earning or have earned payments on the results of instruction. Students who but for this restriction would have taken the medal will receive an honorary certificate instead. Should a student take more than one gold, silver, or bronze medal, he will receive books instead of a second medal.
Payments to teachers.	XVIII. Payments are made to the teacher qualified as in § viii. on account of the instruction students of the Artisan Classes in the manner specified below;—provided that the student has received 25 lessons * at least from the teacher in each subject in which he claims payment since the last examination, each lesson being an attendance at a meeting of the school of at least three-quarters of an hour's duration on a separate evening. The 25 lessons need not necessarily be all given in one year, but may extend over a longer period. XIX. 1l., 2l., 3l., 4l., 5l. are the claimable payments for each student in each subject, according to the class in which he passes, but these amounts may be reduced in the following ways: 1st. If the student has been previously successful in the same subject, such payments are reduced by the normal payment which was claimable on such previous success; for instance, the 4l. payment for a second class would, if the student had previously taken a fourth class, be reduced by 2l.† 2nd. If a student be successful in more than one subject at an examination, the payments on account of such further subjects are reduced by one half. 3rd. When on this scale they would amount to more than 60l. the excess up to 40l. is diminished by one quarter, the excess above 40l. by one half. Thus payments which on the above scale would be 100l. and 150l. will be reduced to 90l. and 115l. respectively.‡ If the teacher be instructing classes three miles or more apart this deduction will be reduced by the amount of his travelling expenses.
Grants for apparatus.	XXII. A grant towards the purchase of apparatus, diagrams, &c., of 50 per cent. on the cost of them, is made to Science Schools and Classes

* It must be clearly understood that the number (25) of lessons which the teacher is required to give is the minimum fixed as a criterion that the pupil has received his instruction from the teacher. It is not meant in any way to specify that that amount of instruction is sufficient, or to guarantee the teacher's receiving payment, if that amount of instruction alone is given.

† Deductions will be made in payments on account of Subject I. to the amount of any payments that have been made on Second Grade Examinations in Art, in practical geometry, perspective or mechanical drawing.

‡ Thus, 100, that is 60 + 40, is reduced to 60 + 40 - $\frac{1}{4}$ of 40 = 60 + 30 = 90. 150, that is, 60 + 40 + 50 is reduced to 60 + 30 + 25 = 115.

in Mechanics' and similar institutions with a properly constituted Committee.

XXII. All payments to qualified teachers on account of Science teaching are made by the Science and Art Department, and are only made in respect of a school in connexion with the Science and Art Department. No such payments are made in respect of any instruction in science that may be given during the three attendances of an Elementary School receiving aid from the Education Department, Whitehall.

XXIV. These grants are only made while the teacher is giving instruction in a day or evening school or class for the industrial classes (adults or boys), approved by the Science and Art Department, and open at any time to the visit and inspection of its officers. The Managers of Elementary School under the inspection of the Education Department can permit their premises to be used for Science teaching, provided that no interference be allowed with the primary purposes of such elementary School, or in any way with the three attendances of the Elementary School.

Science
Directory.

Instruction in
an elementary
school.

Use of elemen-
tary school
premises.

APPENDIX (E.)

EXTRACTS FROM THE ART DIRECTORY.

Art Directory.

AID TO SCHOOLS FOR THE POOR.

1. A School for the Poor is one established to promote the education of children belonging to the classes who support themselves by manual labour.

AID TO
SCHOOLS FOR
THE POOR.

2. The Department will encourage the teaching of drawing in such schools under the following regulations, provided the children are instructed in drawing by teachers holding certificates of the 2nd or 3rd grade granted by the Department.

3. A payment of 1s. will be made for every child who gives under examination satisfactory evidence of having been taught drawing.

Payments.

4. The payment will be raised to 2s. for every child showing proof of proficiency in drawing.

5. The payment will be raised to 3s. for every child who may excel in the examination.

6. A small prize will be given to every child whose drawing may reach the required standard of excellence.

Prizes.

7. A payment of 10s. will be made on every exercise of the 2nd grade satisfactorily worked at an annual examination by a pupil-teacher of the School who has been taught drawing in the School, and a prize to every pupil-teacher who may reach the required standard of excellence.

8. A payment of 1l. will be made for conducting the annual examination, provided 20 children give satisfactory evidence of having been taught drawing.

9. The above-named payments will be made to the Managers of the School.

10. The Department will determine the number of payments to be made, and prizes to be given, annually, by means of examinations of a very elementary character, called of the 1st Grade, in Freehand Drawing from Copies; Freehand Drawing from Models; and in Practical Geometry. As respects all awards of payments and prizes the Department will be sole judge and will not enter into correspondence respecting its decisions.

Examinations.

11. These examinations will take place in the month of May, and must be conducted by the Local Committee, or Managers of the School, who must undertake—

a. To provide a room or rooms of sufficient size to carry out the examination according to the detailed regulations under that head.

Examinations.

b. To send in to the Secretary of the Science and Art Department, before the 14th of April, a statement of the number of children to be examined in each subject of the 1st grade, and of pupil-teachers to be examined in the 2nd grade; to be responsible for conducting the examination; to give out the examination papers which will be sent for that purpose; to see them fairly worked according to the detailed regulations in the presence of at least two of their number; to send the worked papers, under seal, by the first post after the examination to the Secretary of the Science and Art Department.

c. To certify that the School is one established for the education of children belonging to the classes who support themselves by manual labour, and that the children have been instructed by a person holding a certificate from this Department.

d. That one member of the Committee be appointed to act as Secretary, through whom the correspondence with the Department on the business of the School will be carried on.

e. That the School shall be open at all times to the visits of the Officers of the Science and Art Department.

12. The Department will give aid to the extent of 50 per cent. towards the purchase of examples of suitable character.

Examples.

AID TO NIGHT CLASSES.

1. A Night Class is a class for instruction in Elementary Drawing held after 6 p.m., to which the public is admitted on payment of fees within the reach of persons who support themselves by manual labour.

Art Directory.	2. The Science and Art Department will give aid to such classes when conducted under the direction of a Local Committee of not less than five well known responsible persons, and instructed by a teacher, or teachers, holding the certificate of the Department for Elementary Drawing, called of the 2nd Grade, or the Art-master's certificate, called of the 3rd Grade. One member of the Committee must be appointed to act as Secretary, through whom the correspondence with the Department on the business of the Class will be carried on.
Conditions. Committee.	
Payments.	3. The Department will pay annually to the Local Committee or Managers of such Classes the under-mentioned sums on account of the instruction of artisans, teachers, or their children above 12 years of age, viz. :— <ol style="list-style-type: none"> Ten shillings for every exercise in Freehand Drawing from the Flat Practical Geometry, Drawing from Models, Perspective, or Mechanical Drawing satisfactorily worked in a given time by an artisan who pays fees for being taught. A sum not exceeding fifteen shillings for every artisan who shall submit satisfactory works executed, in the class, during the previous year in Drawing from flat examples; Mechanical or Architectural Drawing; Drawing from Geometric Models, Objects of general utility, or Casts of Ornament; Drawing Flowers and Foliage from Nature.
Prizes.	4. Prizes will be given to students, whether artisans, teachers, or not, who excel in the examinations, and also to those students who execute highly meritorious works of the classes named in clause 3 b. The degree of success for which a prize will be awarded will be determined by the Department from year to year.
Examinations.	5. The Department will determine the number of the payments to be made under clause 3 a, and prizes to be given, annually by means of examinations of an elementary character, called of the 2nd Grade. The payments and prizes under clause 3 b will be determined by an inspection of the works of the various classes named. As respects all awards of payments and prizes, the Department will be the sole judge, and will not enter into correspondence respecting its decisions. 6. A payment of 2l. will be paid to the Managers of Night Classes in Mechanics Institutes and National Schools or other schools for the poor for conducting an annual examination of 10 persons (artisans) and upwards. 7. The examinations will take place in the month of March, and must be conducted by the Local Committee or Managers of the Night Class, who must undertake— <ol style="list-style-type: none"> To provide a room, or rooms, of sufficient size to carry out the examination in accordance with the detailed regulations on that head. To admit for examination candidates not connected with the class who may desire to present themselves. To send in to the Secretary of the Science and Art Department before the 10th of February, a statement of the number of students to be examined in each of the subjects of the 2nd grade. To be responsible for conducting the examination; to give out the examination papers which will be sent for that purpose; to see them fairly worked according to the detailed regulations, in the presence of at least three of their number; to send the worked papers, under seal, by the first post after the examination, to the Secretary of the Department.
Transmission of works.	8. The Local Committee must also transmit to the offices of this Department for inspection, on or before the 20th of March, the works of students in the various classes named in ¶ 3, on account of whose instruction payment is claimed, or who compete for prizes. The Department will pay the carriage of works sent up which are within imperial size.
Certificate for payments.	9. The Chairman and Secretary of the Local Committee must certify that the students on account of whose instruction payment is claimed are teachers or artisans within the definition given on page 17, and that they have been instructed by teachers certificated by the Department in accordance with ¶ 2; and must make an annual report, on the prescribed form, of their proceedings to the Science and Art Department.
Examples.	10. Grants of 50 per cent. will be made towards the purchase of art examples approved by the Department and selected by the Managers. 11. Night Classes may be held in Schools of Art, Mechanics' or Literary Institutions, National or other Public Schools, or in any Educational Institution.
Examinations for prizes only.	12. The Class must be open at all times to the visits and inspection of the officers of the Science and Art Department. 13. Examinations may be held in places where no Night Class or School of Art exists, provided that a Committee of not less than three well-known responsible persons be formed, to conduct them under the regulations laid down for Night Classes, ¶ 7. Prizes will be given to successful candidates, but no payments can be made on account of the success of students instructed by uncertificated teachers.

AID TO SCHOOLS OF ART.

1. A School of Art is a room or rooms devoted wholly to instruction in Art, where examples of Art are always open for study and inspection, and where the Managers employ a teacher who has taken an Art teacher's certificate of the 3rd grade.

2. The Science and Art Department will aid the instruction given in Schools of Art to artisans, and teachers, when under the direction of a Local Committee of not less than five well-known responsible persons, and instructed by teachers holding one or more Art certificates of the 3rd Grade. Provided Day Classes are held and that artisan Evening Classes meet under the instruction of the master at least three times in each week for two hours.

One member of the Committee must be appointed to act as Secretary, through whom the correspondence with the Department on the business of the School will be carried on.

3. The following payments will be made to the Local Committee on account of students who are artisans or teachers :—

a. Ten shillings for every exercise in Freehand Drawing from the Flat, Practical Geometry, Drawing from Models, Perspective, or Mechanical Drawing satisfactorily worked in a given time by an artisan who pays fees for being taught.

b. A sum not exceeding fifteen shillings on account of every artisan who shall submit satisfactory works executed, in the School, during the previous year in Drawing from flat examples; Mechanical, or Architectural Drawing; Drawing from Geometric Models, Objects of general utility, or Casts of Ornament; Drawing Flowers and Foliage from Nature.

c. A sum not exceeding twenty shillings on account of every artisan who shall submit satisfactory works executed in the school during the previous year in Drawing, Painting, Modelling, or Designing for Manufactures and Decoration, belonging to classes not included in clauses 3 a and b. Such works will be eligible for National Competition. (¶ 9.)

d. Ten pounds for Art pupil-teachers in every school in which 30 artisans are satisfactorily taught; and twenty pounds in every school in which 100 and upwards are so taught.

e. Five pounds for every student, being an artisan or designer, trained in the School of Art who shall obtain a National Scholarship in the National Art Training School. (See page 39.)

f. Ten pounds for every certificate of the 3rd Grade taken at the annual examination in London by an artisan or teacher trained in the School of Art. (See page 32.)

g. Ten pounds for keeping the necessary registers of students and forwarding, at the appointed time and on the prescribed form, an annual report of the proceedings of the School, and holding an annual examination. This payment is contingent on the holding artisan night classes three times a week for forty weeks, and on the transmission of works to the National Competition.

4. Prizes will be given to students who excel in the examinations of the 2nd Grade, and to students who send up works of great merit in the classes named in clause b, ¶ 3. The degree of success for which a prize will be awarded will be determined by the Department from year to year.

5. The Department will determine the number of the above-named payments, clause 3 a, to be made, and prizes to be given, annually, by means of examinations of an elementary character, called of the 2nd Grade. The payments and prizes under clause 3 b, will be determined by an inspection of the works of the various classes named. As respects all awards of payments and prizes the Department will be the sole judge, and will not enter into correspondence respecting its decisions.

6. The examinations will take place in the month of March, in the evening, and must be conducted by the Local Committee or Managers of the School of Art, who must undertake—

a. To provide a room, or rooms, of sufficient size to carry out the examination in accordance with the detailed regulations on that head.

b. To admit for examination candidates not connected with the School who may desire to present themselves.

c. To send in to the Secretary of the Science and Art Department before the 10th of February a statement of the number of students to be examined in each of the subjects of the 2nd Grade.

d. To be responsible for conducting the examination; to give out the examination papers which will be sent for that purpose; to see them fairly worked according to the detailed regulations, in the presence of at least three of their number; to send the worked papers, under seal, by the first post after the examination, to the Secretary of the Department.

7. The Local Committee must also transmit to the offices of this Department for inspection, on or before the 20th of March, the works of students in the various classes named in ¶ 3, on account of whose instruction payment is claimed, or who compete for prizes. Models in clay or plaster are only to be transmitted when of great excellence, and for the National Competition (see ¶ 9), when they must be in low relief and of imperial or half imperial size. Payments will be made on account of students in Modelling Classes who send up a single satisfactory drawing, accompanied by a certified statement of the number of times the student has attended the Modelling Classes of the school during the year.

8. The Chairman and Secretary of the Local Committee must certify that the students on account whose instruction payment is claimed are teachers or artisans within the definition given on page 17, and that they have been instructed by teachers certificated by the Department in accordance with ¶ 2, and must make an annual report, on the prescribed form, of their proceedings to the Science and Art Department.

Art Directory. 9. The best works sent up in clause c, par. 3, will be selected to enter into a National Competition between the Works of all the Schools of Art in the Kingdom, and medals and prizes will be awarded to the students who execute the most meritorious of the competing works, by examiners appointed by the Department.

National Competition.

10. The prize list will include ten gold medals, distributed as follows:—

One medal for the best study from the Antique, in chalk or monochrome.

One medal for the best study of the figure modelled from the Antique.

One medal for the best example of painting a group of still life from nature in oil colour or water colour.

Six medals for the best designs in the three classes, Architectural Design, Surface Design, Plastic Design.

One medal for a work of a class not included under the above-named heads.

Twenty silver medals, of which part will be given to the second best works in the various subjects to which gold medals are assigned, and the rest to meritorious works in the same, or the best works in other subjects of study.

Fifty bronze medals to meritorious works in any of the various subjects of study.

Any of these medals may be withheld, if, in the opinion of the examiners, the works in any subject are not of sufficient merit to deserve them.

Students who obtain medals of the same class in more than one year's competition may receive books instead of medals.

No student can receive a medal of the same class twice for the same subject.

Additional prizes of works of art, books, &c. will also be awarded.

The works entering into the National Competition will be exhibited in London and in some one of the more important towns of the kingdom where suitable space can be provided.

Carriage works.

11. The Department will pay the carriage of works sent up under these rules, within imperial size; or when larger if on stretchers constructed to fold within the imperial size.

12. Works executed by students not included under the definition of artisan will be admitted to the National Competition and be eligible to gain prizes.

Branch classes.

13. A Night Class may meet in and form part of a School of Art, and Night Classes taught by the master of a School of Art or by teachers holding certificates of the third grade under his direction, but meeting elsewhere under the management of Local Committees, may be considered as branches of the School of Art, and works under clause c, ¶ 3, executed in them may be sent up with the works of the School of Art for payments and for admission to the National Competition.

BUILDING GRANTS.

14. A grant not exceeding 2s. 6d. per superficial foot will be made, up to a maximum of 4,000 feet, in aid of new buildings, or buildings to be adapted for Schools of Art, provided the necessary conditions are complied with.

Examples.

15. Grants of 50 per cent. will be made on Art examples selected by the managers and approved by the Department.

16. Schools of Art are entitled to borrow from the South Kensington Museum and Library objects of decorative art, drawings, prints, books, &c. for exhibition and for use as examples under the regulations given at page 44.

The Department will also, guided by the classification of schools under the heads named at page 47 issue such works, reproductions, &c. as may appear suitable to be retained as permanent loans for longer periods.

Examinations for prizes only.

17. Examinations may be held in places where no school of art or night class exists, provided that a Committee of not less than five well-known responsible persons be formed to conduct them under the regulations laid down for schools of art.

Prizes will be given to successful candidates, but no payments can be made on account of the success of students instructed by uncertificated teachers.

THE NATIONAL ART TRAINING SCHOOL.

1. The National Art Training School at South Kensington is established for the purpose of training Art Masters and Mistresses for the United Kingdom, and for the instruction of students in designing, &c., to be applied to the requirements of trade and manufactures.

2. The course of instruction is fully set forth in the Directory.

Training classes.

3. Students proposing to qualify themselves as teachers of Art Schools, who are personally eligible, and have given satisfactory proof of the possession of general knowledge, are admitted free, when vacancies occur in the Training class, upon the submission of works in Geometry, Perspective, Freehand Drawing, Drawing from Nature of plants or foliage, and Drawing from Models, approved by the Head Master; or, in lieu of these, some more advanced studies of Drawing from the antique, or Painting. These students, when they have obtained the 1st certificate, are eligible to compete for weekly allowances, according to their progress in the school and the certificates obtained, of 5s., 10s., or 15s., in return for which they have to perform certain duties as teachers, and must engage to accept the situations to which they are recommended.

A limited number only of students will receive maintenance allowances of 20s. or 25s. weekly. No student will be eligible to receive such payments who has not taken two of the 3rd grade certificates, or one Art certificate and a Science certificate in Mechanical Drawing or Building Construction. Such Allowances will be granted for one session only. They may be renewable at the discretion of the Department according to the progress and conduct of the student, and the demand for certificated teachers. No student in training will be allowed to remain as such after he has obtained five certificates. Besides their studies in the Training School, students in training will be required to give instruction in parochial and district schools as a part of their training.

Art Directory.

Maintenance allowances.

4. With a view to assist female students in obtaining the necessary qualifications to become Art teachers, admission to the Training School for females is regulated by the rules stated above; they may then receive an allowance of from 5s. to 15s. a week, according to vacancies on the list for a period not exceeding two years, to enable them to obtain the certificate of the 3rd Grade. If their progress and promise justify it, they may (having obtained the 2nd certificate within the two years) continue to receive an allowance for another year, while working for the 3rd certificate.

Candidates who are desirous of passing such Examinations must forward their names, together with the requisite works, to the Secretary of the Department, on the first Saturday in February. They must state the group or groups for which they seek to obtain certificates. These works, if accepted, will be retained by the Department: works of unsuccessful candidates, and candidates not proposing to earn payments from the State, will be returned. They will be informed whether their drawings have been accepted and whether permission can be granted to them to present themselves for examination.

Examinations.

These examinations will take place before the Inspector-General for Art, assisted by other Examiners who may be associated with him. They will be conducted partly by written exercises, and partly by studies made in a given time. Each candidate may be required to teach a class in the presence of the Examiner.

APPENDIX (E).

REPORT on the COLLEGE of SCIENCE for IRELAND.

To the Right Honourable the Lords of the Committee of Her Majesty's Most Honourable Privy Council on Education.

Science College in Ireland.

MY LORDS,

IN accordance with the request contained in the letter of the Lord President dated the 17th February 1866, and with your Lordships' Minute of the 10th March, We, the Commissioners thereby appointed, have carefully considered the subject of the new College of Science referred to us, and have now the honour to submit the following Report:—

2. From the general Minute on Scientific Institutions and Instruction in Dublin—that of the 21st September 1865—it appears that your Lordships consider that, for the various reasons therein given, “the Museum of Irish Industry” now existing in Dublin “should,” on its re-organization as contemplated by the Minute, “have a wider scope given to it than that of a School of Mines; that it should become a College for affording a complete and thorough course of instruction in those branches of Science which are more immediately connected with and applied to all descriptions of industry, including Agriculture, Mining, and Manufactures; that it should in this way supplement the elementary scientific instruction already provided for by the Science Schools of the Department; and that it should assist in the training of teachers for these schools.”

3. At the same time the Minute of 10th March 1866 states that “as the sphere of action sketched out in this” (the preceding) “Minute will be somewhat new and beyond the limits hitherto placed on the action of the Science and Art Department in respect of the encouragement of Science, My Lords have appointed a Commission to advise them on the subject;” and it proceeds “My Lords consider that it is desirable that that the College should, on its establishment, commence with a clear and defined object, a well considered course of study, and a proper staff of professors. They therefore request the Commission to consider these subjects and report generally on the scope of the instruction to be given, the examinations for testing it, and the certificates, &c., to be awarded to successful students.”

4. Her Majesty's Government having thus decided generally on the necessity for the enlargement of the sphere of action of the existing Government institution for scientific instruction in Dublin, it would appear that the matters on which Your Lordships desired that we should advise may be most conveniently taken under the following heads:—

- I. The precise sphere of action of the College and the object at which it should aim.
- II. The scope and subjects of instruction.
- III. The staff of professors necessary.
- IV. The course of instruction and its duration.
- V. The examinations and granting of certificates.

Science College in Ireland. I.—*The precise sphere of action of the College, and the object at which it should aim.*

5. We think the object of the College should be to supply, as far as practicable, a complete course of instruction in Science applicable to the Industrial Arts, especially those which may be classed broadly under Mining, Agriculture, Engineering, and Manufactures, and to aid in the instruction of teachers for the local Schools of Science.

6. We do not consider that the practical applications of Science to Industry, or the Arts themselves, should be undertaken by the New College of Science as a special part of its teaching. Its aim should rather be to impart a sound and thorough knowledge of those branches of Science which may be so applied, leaving it to the student subsequently to specialize his knowledge and turn his attention in the direction he may find most suitable: but practical subjects when capable of being rendered illustrative of scientific principles should in all cases be introduced in the course of instruction.

7. Under existing circumstances, however, due to the division and redistribution of duties between the Royal Dublin Society and the College of Science, and in consequence of the representation made by the Secretary, we think it may be advisable to attach a chair of Agricultural Science to the College. This should be looked upon as experimental, and its continuance be understood to be dependent on its success.

II.—*The Scope and Subjects of Instruction.*

8. The subjects of instruction should be the following:—

- | | |
|---|---------------------------|
| 1. Applied Mathematics. | 8. Geology. |
| 2. Descriptive Geometry and Mechanical Drawing. | 9. Mineralogy. |
| 3. Mechanism. | 10. Agricultural Science. |
| 4. Physics. | 11. Mining. |
| 5. Chemistry. | 12. Metallurgy. |
| 6. Botany. | 13. Machinery. |
| 7. Zoology. | 14. Surveying. |

9. We propose that under Applied Mathematics should be taken the application of Mathematics to those Sciences which are generally included under the head of Mechanics, viz., Statics, Dynamics, Hydrostatics, and Hydrodynamics, as well as to some other branches of Physics.

10. Under Mechanism should be treated only the relations of motion, or the study of machines merely as contrivances for changing one kind of motion into another, apart from any considerations of force, a science which has been termed Kinematics.

11. Under Machinery then would be treated the application of Mechanics and Mechanism to machines used in the industrial arts.

12. As probably many students will enter at first without a sufficient knowledge of pure Mathematics, the Professor of Applied Mathematics should give such preliminary instruction as may be necessary to students entering for the Associateship (see par. 18). He should not be called upon to give any such instruction to the occasional students, who can obtain it easily for themselves, and who should not be allowed to join the Applied Mathematics class without being thoroughly prepared in the elements of Pure Mathematics.

13. Chemistry should include both Lectures and Laboratory practice.

14. The requisite appliances and assistance for instructing the students practically in this and other branches of science should be provided.

III.—*The Staff of Professors.*

15. To teach the foregoing subjects Professors will be required in—

- | | |
|---------------------------------------|---|
| 1. Applied Mathematics and Mechanism. | 7. Geology. |
| 2. Physics. | 8. Mineralogy and Mining. |
| 3. General Chemistry. | 9. Agriculture. |
| 4. Applied Chemistry. | 10. Descriptive Geometry, Mechanical Drawing, Machinery, and Surveying. |
| 5. Botany. | |
| 6. Zoology. | |

Professorships of Physics, General Chemistry, Applied Chemistry, Botany, Zoology, Geology, and Agriculture already exist in connexion with the Science and Art Department. This proposal therefore, contemplates the addition of three new Professorships.

16. It will be necessary for the Professor of Applied Mathematics and Mechanism, and the Professor of Descriptive Geometry, Machinery, and Surveying, to devote their whole time to the College; whilst from the other professors a minimum of three lectures a week during the session will be required. As the School develops, assistants or tutors to teach under the Professors may be needed in many of the subjects.

IV.—*The Course of Instruction.*

17. The course of instruction should extend over three years. There should be two terms in each year. In the first two years the instruction should be general. In the last year it should be specialized under the heads of Agriculture, Mining, Engineering, and Manufactures. The following is the scheme proposed:—

FIRST YEAR.

1st term.
Applied Mathematics.
Physics.
Descriptive Geometry.

2nd term.
Applied Mathematics.
Physics.
Botany.
Descriptive Geometry.

SECOND YEAR.

Applied Mathematics.
Chemistry.
Laboratory practice.
Mechanical Drawing.

Chemistry.
Laboratory practice,
Zoology.
Mechanical Drawing.

THIRD YEAR.

Division A. Mining.

Geology with demonstrations in Palæontology, Mineralogy, Mining,
and Assaying.

Division B. Agriculture.

Geology, Agricultural Science, and Land Surveying.

Division C. Engineering.

Mechanism, Machinery, Mechanical Drawing, and Surveying.

Division D.

Mechanism, Applied Physics, and Applied Chemistry.

V. *Examinations and Certificates.*

18. A diploma of Associateship of the College should be given to students who pass in all the subjects of the first two years and take a first class in all the subjects in one division of the 3rd year.

19. Persons should also be permitted to enter for the separate courses and to receive certificates after examination.

20. The examinations should be conducted by officers appointed by the Science and Art Department conjointly with the Professors of the College.

21. In conclusion we would beg leave strongly to urge that it is important and advisable to have instruction given in Political Economy. Probably the best way of promoting a knowledge of this important Science would be to establish evening lectures to be attended by the students but be open to all other persons. Any objections that might be taken to a Government Department dealing with this subject might, we would suggest, be met by requesting one or other of the Universities to appoint the lecturer for the time being.

We have the honour to be,

My Lords,

Your Lordships' obedient Servants,

(Signed)

ROSSE.

TALBOT DE MALAHIDE.

W. B. CARPENTER.

B. M. COWIE.

JOHN FOWLER.

E. FRANKLAND.

W. H. GREGORY (with the exception of paragraph 21 to which I object).

H. D. HARNESS, COL., R.E.

A. W. HOFMANN.

THOMAS H. HUXLEY.

J. BEETE JUKES.

ROBERT KANE.

MYLES O'REILLY (with the exception of paragraph 21 to which I object).

LYON PLAYFAIR.

E. SABINE, LIEUT.-GENERAL, R.A.

WARRINGTON W. SMYTH.

WILLIAM K. SULLIVAN.*

JOHN TYNDALL.

J. F. D. DONNELLY, CAPT. R.E., AND SECRETARY OF COMMISSION.

South Kensington, 9th July 1866.

* Professor Sullivan signs with the following reservation, "with the exception of paragraph 13 which does not express the decision of the Commission; the first part of paragraph 16 so far as relates to the words 'devote their whole time;' and the last sentence of paragraph 21 to which I strongly object."

APPENDIX F.

The Collections are now regulated by the following Minute:—

South Kensington
Museum.

ART COLLECTIONS OF THE SOUTH KENSINGTON MUSEUM.

At South Kensington, the 13th day of June 1863.

Present:

The EARL GRANVILLE, K.G.
The Right Hon. ROBERT LOWE, M.P.

By the Right Honourable the Lords of the Committee of Her Majesty's most Honourable Privy Council on Education.

1. My Lords take into their consideration the state of the collections of the Art Division of the South Kensington Museum.
2. Their Lordships refer to various reports on the subject, and especially to those hereafter mentioned:

(A.) The Report of the Select Committee of the House of Commons of 1841, recommending the formation and extension of Art Collections in this country.

(B.) The report of the Committee of Management of the School of Design (the late Lord Colborne being Chairman) prepared in 1845, which pointed out that "on the continent the various styles of art in different times and countries are not only more carefully studied by artists, but are more generally known to the people than among us, and that certainly with regard both to fine art and to ornamental manufactures, this superior knowledge constitutes an advantage of great value." After noticing the existence abroad of costly and expensive Museums, especially the Louvre, "where there are galleries not only of pictures and statues but of choice specimens of ancient manufactures, carved works, brass, steel, and iron work, and numerous examples of industrial art in general," the Committee recommended that the School of Design should possess "collections not only of architectural casts, specimens of antique sculptures, and prints of ornament, all of which are essentially requisite, but collections more especially of examples of decorative work, in order to exhibit to the students of the school, to inquiring manufacturers, artisans, and the public in general, the practical application of the principles in design in the graceful arrangement of forms and harmonious combinations of colours."

(C.) The Report of the General Superintendent (Mr. Cole), and the Art Superintendent (Mr. Redgrave), in 1852, submitted to the President of the Board of Trade (the Right Honourable J. W. Henley), and laid before Parliament, which recommended that "fine examples of what has already been accomplished should be placed before the student," and that the "educated designer for ceramic manufactures should have an adequate knowledge of what Japan, Meissen, Sèvres, and even Chelsea have already done, and should be practically familiar with the early chintzes of India, etc." (Estimates 1852-3, No. 4, page 16.)

3. My Lords examine the different analyses of the Art Collections which the General Superintendent has caused to be prepared for the purpose of showing—1st, the number of articles classed according to different materials and manufactures; 2nd, how far the productions of each country and various epochs are represented; and, 3rd, the amount of public funds which have been devoted to each class of articles.

4. Their Lordships are of opinion that on the whole the valuable collections which have been made contain the classes of objects which it was considered desirable to acquire when the collections were commenced. They consider that perhaps the most useful and important section of art, namely that of Mediaeval Italy, is well represented; and remark that other sections are incomplete, and some, such as Spanish, are hardly represented at all.

5. My Lords do not find that any directions, besides those employed in the foregoing extracts, have been laid down, and consider that the time has come when it is necessary that, as far as possible, definite instructions should be given to regulate the increase and completion of the collections.

6. Their Lordships accordingly direct that future purchases be confined to objects wherein fine art is applied to some purpose of utility, and that works of fine art not so applied should only be admitted as exceptions, and so far as they may tend directly to improve art applied to objects of utility.

7. The decorative art of all periods and all countries should be completely represented. Classic art ought not to be omitted, but inasmuch as the British Museum is particularly devoted to the illustration of classic art, it should be represented only to a limited extent and for the purpose of showing the impression made by it upon subsequent periods.

8. The best works of all periods and countries should be obtained as far as practicable. Second rate works should only be acquired as substitutes until better works can be obtained.

9. Where the taste of the age or country has been low, few specimens only will be necessary. On the other hand, where the art is excellent and tends especially to the improvement of modern manufactures, the specimens may be more varied and numerous.

10. Original works are to be obtained as far as possible, but where this would seem to be impracticable, the system hitherto pursued of representing the finest known examples by electrotypes, casts, and drawings, will be followed, it being always kept in mind that the aim of the Museum is to make the historical and geographical series of all decorative art complete, and fully to illustrate human taste and ingenuity.

By order of the Lords of the Committee of Council on Education.

HENRY COLE,
Secretary and General Superintendent.

South Kensington
Museum.

ART COLLECTION.

RULES.

ADMISSION AND STUDY.

The Museum is open free on Mondays, Tuesdays, and Saturdays. The STUDENT'S DAYS are Wednesdays, Thursdays, and Fridays, when the public are admitted on payment of 6d. each person. The hours on Mondays, Tuesdays, and Saturdays are from 10 a.m. till 10 p.m.; on Wednesdays, Thursdays, and Fridays, from 10 a.m. till 4, 5, or 6 p.m.

TICKETS OF ADMISSION to the Museum, including the Art Library and Educational Reading-room, are issued at the following rates:—*weekly*, 6d.; *monthly*, 1s. 6d.; *quarterly*, 3s.; *half-yearly*, 6s.; *yearly*, 10s. *Yearly* Tickets are also issued to any School at 1l., which will admit all the pupils at such school on all Student's days; to be obtained at the Catalogue Sale-stall of the Museum.

Applications for leave to study on Student's days must be made to the Office of the Art Museum, where the necessary arrangements for the convenience of the students, &c., will be made.

GIFTS TO THE MUSEUM.

All gifts are received only on the understanding that they are at the absolute disposal of the Committee of Council for the use of the South Kensington Museum or any of its affiliated and local institutions.

RECEPTION OF OBJECTS ON LOAN COLLECTIONS.

1. An object is considered lent for a period of six months, unless otherwise expressed by the lender.

2. The Department photographs such loans as may be useful for instruction in the Schools of Art, unless the lender object, and two copies of each photograph are sent to him; but permission to copy or photograph objects on loan is not granted to private persons without reference to the lender.

3. Whilst every care is taken of articles lent to the Museum for exhibition, it is necessary to state that the Department (as in similar cases, the Exhibitions of 1851, 1862, the Royal Academy, &c.) cannot be responsible for loss or damage.

PURCHASE OF OBJECTS OF ART.

In order to render the objects in the Art Museum which can be dispensed with, available for the purposes of public instruction, Local Schools of Art have the privilege of purchasing them at half the prime cost.

CIRCULATION AND EXHIBITION OF WORKS OF ART FROM THE CENTRAL MUSEUM.

As far as possible, consistently with the security of the objects, the works of Art of all kinds deposited in the Central Museum are lent and circulated to the Schools of Art. (See Appendix W., page 57.)

LENDING LIBRARY.

Arrangements have been made for lending to Schools of Art the books, drawings, and prints collected in the Central Library at South Kensington. (See Appendix X., page 58.)

A BRIEF ACCOUNT OF THE FORMATION OF THE ART COLLECTIONS.

1. THE commencement of the collections forming the Art Museum dates from the year 1846, when a Committee, appointed by the Board of Trade, recommended that a Museum should be "formed in connexion with the School of Design at Somerset House, which should exhibit to the students of the school, to inquiring manufacturers, artisans, and the public in general the practical application of the principles of design in the graceful arrangement of forms, and the harmonious combination of colours." Some few specimens were procured in accordance with this recommendation.

South Kensington Museum.

2. Numerous objects collected from the Exhibition of 1851, were purchased with a Parliamentary grant of 5,000*l.* made to the Board of Trade (The Rt. Hon. H. Labouchere, M.P., President, now Lord Taunton). The specimens thus obtained consisted of examples of furniture, metal work, pottery, and woven fabrics, and were selected by a Committee consisting of Mr. Cole, C.B., Mr. Owen Jones, Mr. Pugin, and Mr. Redgrave, R.A., who, in forming this collection, looked to its becoming the nucleus of a Museum of Ornamental Manufactures.

3. In 1852, the Department of Practical Art of the Board of Trade was constituted (The Rt. Hon. H. Labouchere, M.P. President), and the collection already made was publicly exhibited in the rooms of Marlborough House; and in that year the Bandinel collection, illustrative of pottery and porcelain, was acquired (The Rt. Hon. J. W. Henley, M.P., President).

4. In 1854, Parliament made a vote for purchases from the collection of Mr. Bernal. Upwards of 8,583*l.* was expended by the Department of Science and Art, under the authority of the Board of Trade, (The Rt. Hon. Lord Stanley of Alderley, President,) principally in specimens of pottery and porcelain, Majolica ware, glass, and metal work approved upon the recommendation of Mr. Redgrave, R.A. The Gherardini collection of Models for sculpture was bought by the Chancellor of the Exchequer for 2,110*l.*, (The Rt. Hon. W. Gladstone, M.P.,) and placed in the Art Museum.

5. In 1855, 3,500*l.* was expended in purchases from the Paris Exhibition, selected by Mr. Cole and Mr. Redgrave.

6. The Soulages collection, which was especially rich in Majolica ware and specimens of Italian furniture, was brought to England by means of a guarantee fund, headed by the Prince Consort, in 1856, and finally deposited in the Museum of the Department. Purchases have been made from it amounting to upwards of 8,000*l.* (The Rt. Hon. the Marquiss of Salisbury, K.G. and the Earl Granville, K.G., being Lords Presidents).

7. In the year 1857 the Department was transferred from the Board of Trade to the Committee of Council on Education, and shortly afterwards the Museum and offices were moved from Marlborough House to South Kensington.

8. 1858-9, Mr. Cole being in Italy, made notes of numerous objects worthy of purchase; and in 1859-60 Mr. Redgrave and Mr. Robinson went to Italy to effect the purchases of such objects, and numerous purchases were made.

9. In 1860 the Gigli portion of the collection made by the Marquis Campana, consisting of examples of Italian sculpture, was selected by Mr. Robinson and purchased for the sum of 6,000*l.*

10. In 1861 the sale of the Soltikoff collection took place in Paris, and upwards of 5,982*l.* was expended in the purchase of objects from that collection. Other additions were also made in that year from the sale of M. Uzielli's collection.

11. The International Exhibition of 1862 offered opportunities of acquiring specimen of modern art manufacture, British and foreign, and objects were thus obtained, which cost altogether 3,947*l.* (The Rt. Hon. the Earl Granville, K.G., being Lord President).

12. Such have been the principal sources from which the Collections have been formed. In addition, numerous other purchases have been made by means of annual votes of Parliament.

13. The present Inventory contains all objects belonging to the Art Museum, registered up to the 30th of June 1863, except casts and reproductions, which are separately inventoried. It is arranged in divisions, according to the nature of the specimens, such as sculpture, mosaics, pottery, furniture, &c. The first number is the "finding" number; the second (within brackets) is the present number in the Register of the Department. In cases in which a price is not named, such specimens have been purchased in lots with others, or presented.

14. A new edition of the Inventory is in course of preparation in which the "finding" number will be the same as the "registration" number; that is to say, the Inventory will not be arranged in divisions as at present. And this Inventory will contain full classifications of the objects, arranged,—

1. According to the *date* of the object.
2. According to the *nature* or *material* of the object.
3. According to the *country* in which the object was produced.

15. The inventory is independent of catalogues or guides which are published from time to time.

SOUTH KENSINGTON MUSEUM.

This Museum commenced with the erection in 1856 of an iron structure of the simplest kind. It was built under the superintendence of Sir W. Cubitt, and when completed was given by the Commissioners of the Exhibition of 1851, into the possession of the Science and Art Department. Since that date a permanent brick and iron structure, with terra-cotta decorations, has been built. The building was planned, and its construction superintended up to the year 1865, by the late Captain Fowke, R.E., architect of the building for the International Exhibition of 1862. Its decorations, external and internal, were designed by the late Mr. Godfrey Sykes, originally a student of the Sheffield School of Art. Specimens of terra-cotta decoration designed by this artist may be seen in the Champs de Mars,

The contents in the South Kensington Museum may be classified as follows:—

South Kensington Museum.

1. The Art Collections, which now number 12,530 objects, illustrative of the history, principles, and processes of decorative art in sculpture, carvings in wood and ivory, decorative furniture, metal work, goldsmiths' work, jewellery and lapidaries' work, engraved gems, niello work, arms, armour, pottery, glass, enamels, ancient lac work, textile fabrics, miniatures, &c. &c. An important feature in these collections is the reproduction by means of casting, and electrotypy, of rare and costly works of art in other countries, with which the Department of Science and Art is desirous of effecting exchanges of such reproductions. Another feature is the permanent Loan Exhibition of valuable objects of art belonging to private owners; such are many of the works now being exhibited at Paris, in the History of Labour Collection. The museum also contains a large and valuable number of modern English paintings mainly presented by the late J. Sheepshanks, Esq., and water-colour drawings, principally bequeathed by the late R. Ellison, Esq., as well as the Cartoons of Raphael lent by Her Majesty; and it affords temporary accommodation for the exhibition of many paintings of the British School which belong to the National Gallery.

2. The Art Library containing about 15,000 volumes relating to art, and a great number of original drawings, illuminations, and engravings.

3. The Educational Museum and Library, containing many educational works in various European languages, and scientific apparatus and diagrams, chiefly lent by the inventors and publishers.

4. The Museum of Construction and Building Materials, containing examples of materials and apparatus of use in building, drawing, and decorating houses; and many architectural models.

5. The Museum of Animal Products and Food Collection, principally formed by the transference by English and foreign commissions of collections exhibited in the International Exhibitions of London in 1851 and 1862, and of Paris in 1855.

6. The Naval Models, belonging to the Admiralty, supplemented by loans from private builders and owners. The Admiralty Collection shows the various changes in the construction of men-of-war from 1416 down to the present time.

Descriptive labels are attached to all objects in the Museum, to avoid compelling visitors to purchase catalogues, which, however, may be obtained in the building.

The following are the terms on which the Museum is open to the public, and the tables show the number of visitors since the opening of the Museum in 1857.

The Museum is open daily, Sundays excepted, free on Mondays, Tuesdays, and Saturdays, from 10 A.M. till 10 P.M. The Students' days are Wednesdays, Thursdays, and Fridays, when the public are admitted on payment of 6d. each person, from 10 A.M. till 10 P.M.

Tickets of admission to the Museum, including the Art-library and Educational Reading-room, are issued at the following rates:—Weekly, 6d.; monthly, 1s. 6d.; quarterly, 3s.; half-yearly, 6s.; yearly, 10s. Yearly tickets are also issued to any school at 1l. which will admit all the pupils of such schools on all students' days; to be obtained at the catalogue sale-stall of the Museum.

ATTENDANCE AT THE MUSEUM.

1866.	Free Days.		Students' Days.	Totals.	Corresponding Numbers in			
	Morning.	Evening.			1865.	1864.	1863.	1862.
January -	32,204	21,702	7,582	62,488	52,631	41,594	42,546	48,240
February -	25,498	19,817	6,723	52,038	42,249	38,985	41,697	55,123
March -	27,452	20,427	7,850	55,729	46,128	71,009	42,901	64,631
April -	41,608	23,365	16,033	81,006	69,376	56,363	206,548	90,474
May -	43,406	23,679	26,187	93,272	53,762	54,322	90,899	65,414
June -	21,788	18,335	21,471	61,594	83,187	51,213	44,409	129,352
July -	27,128	17,412	16,653	61,193	61,150	52,810	37,998	163,662
August -	29,293	23,375	29,640	82,308	71,245	65,399	41,722	162,142
September -	25,369	21,104	5,044	51,517	59,416	52,274	48,632	167,945
October -	28,468	22,164	6,215	56,847	45,174	59,001	46,622	171,225
November -	21,522	14,578	6,260	42,360	39,825	42,691	34,538	74,832
December -	37,698	14,443	3,612	55,723	59,811	67,408	48,403	48,329
Totals -	362,404	240,401	153,270	756,075	692,954	653,069	726,915	1,241,369

Total since the opening of the Museum on June 22, 1857, 6,485,572.

COMPARISON OF THE YEARLY NUMBER OF VISITORS.

Years.	No. of Visitors.	Years.	No. of Visitors.	Years.	No. of Visitors.
1854	104,823*	1859	475,365	1864	653,069
1855	78,427*	1860	610,696	1865	692,954†
1856	111,768*	1861	604,550	1866	756,075
1857	268,291‡	1862	1,241,369§		
1858	45,288‡	1863	726,915		

* To the Museum of Ornamental Art, only, at Marlborough House.

† Collections removed to South Kensington.

‡ First Calendar Year at South Kensington.

§ Year of Exhibition of 1862.

|| Exhibition of Wedding Presents of Princess of Wales.

¶ Exhibition of Miniature Portraits.

APPENDIX G.

Science and
Art Depart-
ment.

SCIENCE and ART DEPARTMENT for the UNITED KINGDOM.

AN ESTIMATE of the SUMS required to be Voted for the SCIENCE and ART DEPARTMENT,
including the various establishments connected therewith, for the Year ending 31st
March 1868.

Two Hundred and Six Thousand Three Hundred and Eighty-seven Pounds.

No.	Estimate.	1867-8.			1866.		
		£	s.	d.	£	s.	d.
1	For Schools of Science and Art in the United Kingdom, as given in detail at p. 14.	41,250	0	0	27,300	0	0
2	For the South Kensington Museum :—						
	Purchases of Objects and Books	17,750	0	0			
	Management, including Supply of Gas, Furniture, &c. &c.	37,725	0	0			
3	National Portrait Exhibition, Works, Heating, and Guarantee.	55,475	0	0	52,175	0	0
4	New Permanent Buildings, also Completion and Decoration of Buildings already begun on account of 195,000 <i>l</i> .	32,500	0	0	20,000	0	0
5	Establishment of Auxiliary Museum of Science and Art in the East of London, on account of 20,000 <i>l</i> .	5,000	0	0	—		
6	Institutions in England and Scotland, in connection with the Department :—						
	Geological Museum, Jermyn Street.	11,298	17	0			
	College of Chemistry	730	0	0			
	Geological Survey	19,654	2	6			
	Edinburgh Museum	5,828	0	0			
7	Institutions in Ireland in connection with the Department :—	37,510	19	6	30,121	18	6
	Royal Dublin Society :—						
	Annual Grant	8,580	2	8			
	Works	1,358	0	0			
	Special Objects	6,500	0	0			
	College of Science, and Museum of Irish Industry.	7,095	16	0			
	Alterations of Building, to adapt it for a College of Science, on account of 3,000 <i>l</i> .	1,000	0	0			
	Royal Hibernian Academy	300	0	0			
	Zoological Society (Dublin) :—						
	Grant	£500					
	Special Objects	1,000					
		1,500	0	0			
8	Administration (see Details at p. 20)	26,333	18	8	23,433	12	8
		8,317	0	0	7,897	0	0
	£	206,386	18	2	173,927	11	2

APPENDIX H.

SCIENCE AND ART DEPARTMENT. — *Cromwell Road, South Kensington, W. (Office Hours 10 to 4.)* Science and Art Establishment.

Lord President, His Grace the Duke of Marlborough.
Vice-President, Right Hon. The Lord Robert Montagu.

GENERAL ADMINISTRATION.

Secretary, Henry Cole, C.B. Assistant Secretary, Norman MacLeod.
Chief Clerk, vacant.
First Class Clerks, P. B. B. Peile, E. P. Bartlett, and A. J. R. Trendell.
Second Class Clerks, A. H. Gasparini, C. A. Pierce, A. S. Cole, and T. Chesman, B.A., LL.B.
Supplementary Clerks, E. Belshaw, W. Burt, and G. G. Millard.
Assistant Clerks, W. H. F. Stratton, C. Comyns, and C. G. Quinton.
Accountant, A. L. Simkins.
Bookkeeper, Henry W. Williams. Assistant Bookkeeper, T. A. Bowler.
Storekeeper, W. G. Groser. Deputy Storekeeper, Henry Lloyd.

Science Division.

Official Inspector for Science, Captain Donnelly, R.E.
Occasional Inspectors, J. F. Iselin, M.A., F. J. Sidney, LL.D.; and Captain Harris, E.I.C. (Navigation). Official Examiner, G. C. T. Bartley.
Professional Examiners for Science, Professors T. Bradley, Rev. B. M. Cowie, B.D.; A. W. Hofmann, LL.D., F.R.S.; T. H. Huxley, F.R.S.; G. Kinkel, Ph.D., F.R.G.S.; J. Percy, M.D., F.R.S.; A. C. Ramsay, F.R.S.; W. W. Smyth, M.A., F.R.S.; T. Thomson, F.R.S.; J. Tyndall, F.R.S.; Rev. J. Woolley, LL.D.
Organizing Master of Science Classes, J. C. Buckmaster.

Art Division.

Inspector-General, Richard Redgrave, R.A.
Official Inspectors, H. A. Bowler and G. Wyld.
Occasional Inspectors, S. A. Hart, R.A., Eyre Crowe, and F. B. Barwell.
Official Examiner, G. F. Duncombe.
Occasional Examiners, J. Marshall, F.R.S., F.R.C.S., Rev. J. H. Edgar, T. Clack, G. M. Atkinson, G. Stewart, G. R. Redgrave, C. Dresser, Ph.D.
Professional Examiners, Sir. F. Grant, P.R.A.; Danl. MacLise, R.A.; J. C. Horsley, R.A.; Richard Redgrave, R.A.; F. Leighton, A.R.A.

SOUTH KENSINGTON MUSEUM.

Director, Henry Cole, C.B.
Assistant Directors, R. A. Thompson, P. C. Owen, Capt. E. R. Festing, R.E.
Director of New Buildings, Lieut.-Col. Scott, R.E.
Decorative Artists, J. Gamble, R. Townroe.
Art Referees for the Museum, R. Redgrave, R.A.; J. C. Robinson, F.S.A.
Editor of Catalogues and Referee for Libraries, J. H. Pollen, M.A.
Provisional Librarian for Art Library, R. H. Soden Smith, M.A.
Division Keepers of Museum Collections, G. Wallis, W. Matchwick, H. Sandham, R. Laskey.
Assistant Keeper of Museum Collections, C. B. Worsnop.
Supplementary Assistant Keepers, C. C. Black, M.A.; R. F. Sketchley, B.A.; H. E. Acton; J. W. Appell, Ph.D.; A. C. King, F.S.A.; D. Craven.
Clerk of Collections, J. B. Rundell.
Supp. Clerks, H. Vernon, A. Masson, F. Coles, F. Groser, W. G. Johnson.
Agent for Sale of Examples, J. Cundall.
Official Photographer, C. T. Thompson. Hon. Surgeon, F. S. Haden, F.R.C.S.

NATIONAL ART TRAINING SCHOOL.

Head Master, R. Burchett. Deputy Head Master, R. W. Herman.
Mechanical and Architectural Drawing, H. B. Hagreen.
Geometry and Perspective, C. M. Clarke.
Painting, Freehand Drawing of Ornament, &c., the Figure and Anatomy, and Ornamental Design, R. Burchett, R. W. Herman, W. Denby, R. Collinson, and C. P. Slcombe. Modelling, F. M. Miller.
Lady Superintendent of Female Students, Miss Trulock.
Female Teachers, Mrs. S. E. Casabianca and Miss Channon.
Lecturer on Anatomy, J. Marshall, F.R.S., F.R.C.S.
Lecturer on Botany, Christopher Dresser, Ph.D. (Jena).

ROYAL SCHOOL OF NAVAL ARCHITECTURE, &c.

Inspector-General and Director of Studies, Rev. Joseph Woolley, LL.D.
Principal, C. W. Merrifield, F.R.S.
Vice-Principal, Henry Martyn Taylor, B.A.

Science and Art Establishment.
Instructor in Naval Drawing, W. B. Baskcomb.
Instructor in Engineering Drawing, John Maxton.
Instructor in Practical Chemistry, John Davidson.
Instructor in French, M. Penon.

GEOLOGICAL SURVEY OF THE UNITED KINGDOM.

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Local Director for Great Britain, Andrew C. Ramsay, Esq., F.R.S.
Local Director for Ireland, J. Beete Jukes, Esq., M.A., F.R.S.
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Assistant Geologists, Thos. McK. Hughes, B.A., Alex. Green, M.A., Jas. Geikie, Wm. Topley, J. Roche Dakyns, M.A., B. N. Peach, A. Boyd Dawkins, B.A., R. H. Tiddeman, B.A., and J. Clifton Ward, Esqrs.
Fossil Collector, Richard Gibbs.
Geologists on the Irish Survey, G. V. Du Noyer, W. H. Bailey, G. H. Kinahan, F. Foot, and J. O'Kelly, Esqrs.
Assistant Geologists, and Rich. G. Symes, Esqrs.
Fossil Collectors, C. Galvan, A. McHenry. *Porter*, D. Mooney.

ROYAL SCHOOL OF MINES AND MUSEUM OF PRACTICAL GEOLOGY.—(Jermyn Street, S.W.)

Director, Sir Roderick Impey Murchison, Bt., K.C.B., LL.D., F.R.S.
Keeper of Mining Records, Robert Hunt, Esq., F.R.S.
Assistants, Messrs. R. Meade, J. B. Jordan.
Registrar, Curator, and Librarian, Trenham Reeks, Esq.
Assistant Librarian, Mr. T. W. Newton.
Assistant Curator, Mr. F. W. Rudler.
Professors, Thomas H. Huxley, F.R.S. (Natural History). W. W. Smyth, M.A. F.R.S., (Mining and Mineralogy). Edward Frankland, Ph.D., F.R.S. (Chemistry). A. C. Ramsay, F.R.S. (Geology). John Percy, M.D., F.R.S. (Metallurgy). John Tyndall, F.R.S. (Physics). Robert Willis, M.A., F.R.S. (Applied Mechanics).
Assistant Chemist, Mr. H. McLeod.
Assistant Metallurgist, Mr. Richard Smith.
Officekeeper and Resident Attendant, James Holmes.
Attendant and Messenger, Samuel Pond. *Doorkeeper*, John Haggard.

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